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PROCEEDINGS
OF THE
ZOOLOGICAL SOCIETY OF LONDON.

January 10, 1854.

H. F. Walter, Esq., in the Chair.

The following papers were read:—

1. NOTES ON THE HABITS OF INDIAN BIRDS.—PART I.
By LIEUT. BURGESS.

Order I. RAPTORES.

Family VULTURIDÆ.

Genus VULTUR.

VULTUR PONDICERIANUS. BLACK VULTURE.

This Vulture, as far as I have had opportunities of observing it, is much more common in the Deccan than either the large (*Vultur Indicus*) or the small brown Vulture (*Vultur Bengalensis*). I have never, however, seen more than two or three together, and these generally in the neighbourhood of the low ranges of hills which intersect that part of the country. As this bird has doubtless been already figured, it is not my purpose in these notes to enter into any further description of it, but merely to state what I have observed of its habits, food, manner and time of nesting, with any other information regarding it which I may have gained by actual investigation, or learned from credible sources. In its habits the Black Vulture, I should certainly say, is not gregarious; I do not remember to have seen more than four or five together, and then it has been for the purpose of partaking of a social meal. It flies in circles with the wings extended, apparently without motion, and their tips pointed upwards, the legs being stretched out beneath the tail. The food of this Vulture consists of decaying animal substances; one which I shot drinking in a

No. CCLX.—PROCEEDINGS OF THE ZOOLOGICAL SOCIETY.

stream disgorged the entire leg of a cat. They breed during the months of February and March. In my notes taken at the time, I find the following:—"March 7. Found to-day, on the top of rather a low peepul (species of banian tree), the nest of the Black Vulture, on which one of the old birds was sitting. The nest, which was very large, was built of small sticks; it contained one egg. On the same tree a pair of the Black-headed Ibis (*Tantalus melanocephalus*, Lath.) had also built their nest; it contained four white eggs, very similar to those of the Pelican Ibis (*T. leucocephalus*)."—"March 19. Shot a male Black Vulture sitting on one egg; the nest was about a yard in circumference, built on the top of a thorny tree; it was composed of the thorny branches and other sticks below it. Among the thorny twigs forming the nest were two small nests, belonging to birds of the Passerine order, containing young." In both these cases only one egg was found, of a pure white colour, $3\frac{8}{10}$ inches in length by $3\frac{1}{20}$ inches in width. In a third also, only one egg was found. The natives say that the Black Vulture lays two eggs, containing a male and female bird, but these facts seem opposed to such a statement.

Genus NEOPHRON.

NEOPHRON PERCNOPTERUS. EGYPTIAN VULTURE.

This is the most common and most efficient scavenger to be found in the cantonments of India. The last-mentioned Vulture feeds only, I believe, on decaying animal substances, but this bird usurps the place of the night-cart, removing the filth that would otherwise cause pestilence under a tropical sun. Any one who has been in India must have observed these disgusting-looking birds, from the young in its black to the mature in their white plumage, stalking with awkward gait in troops about the plains which generally surround an Indian military station, and no one can mistake the errand on which they are there. They breed during the months of February, March, and probably April. I have found their nests most frequently during the month of March. The nest, of a large size, is composed of sticks; in one case it was lined with rags and other refuse. It is generally built on tall trees, especially the banian. I found one on a ledge of rock on the side of a steep hill. The eggs are in general two in number, varying very much in colour, from white spotted with brown to a universal rust or liver-brown, darkest at the large end; $2\frac{7}{10}$ inches in length by $2\frac{1}{20}$ inches in breadth. One nest contained two eggs, one nearly white, the other equally brown. The young when first hatched are covered with a whitish-brown down, the down being whitest on the oldest. I give a description of a young bird brought to me on the 15th of April: "Beak and naked skin under the chin and about the gape and beak, dull greenish lead-colour, that over the eyes and on the forehead, lead. Irides dark; a white spot of down on the crown of the head; feathers on the neck and upper part of the body tipped with ferruginous; back upper tail-coverts dull white, tipped with fawn; tail-feathers dull whitish fawn; lesser coverts whitish, tipped with ferruginous brown; quills greenish-black; legs

and feet dull lead-colour; middle toe very long." In notes taken at the time, I find an entry that I saw an Egyptian Vulture on her nest as late as the 4th of May.

Family FALCONIDÆ.

Subfamily AQUILINÆ.

Genus AQUILA.

The eggs of the Eagle forwarded with these notes are those, I believe, of *Aquila fusca*, Gray (identical I imagine with *Aquila nævia*, Gould), because that bird is by far the most common of the family in that part of Western India situated above the Ghauts. In the hilly portions of the country this bird may be seen perched on some elevated point of rock, sitting motionless, basking in the rays of the early sun; in the plains a solitary tree is almost sure to have one of them on its topmost branch. After the sun has been up some two or three hours, it commences its search for food, consisting chiefly, I believe, of hares. A Mharatta of high family, who had a very considerable knowledge of the habits of the birds of the country, told me that when an eagle discovers a hare in her form, which is generally in the grass at the foot of a bush, she will strike the bush with her wings to drive her victim out, before striking at it. That a large portion of this eagle's food consists of hares, I can attest, having found their skulls and bones in a nest. The nest, of a large size and composed of sticks, is built on tall trees; it contains two eggs, $2\frac{7}{10}$ inches in length and $2\frac{1}{10}$ inches in breadth, of a white ground, sprinkled over with reddish spots. They commence breeding as early as the latter end of November, and their eggs may be found up to the beginning of April.

Subfamily CYMINDINÆ.

Genus ELANUS.

ELANUS MELANOPTERUS.

I was never able to procure the nest and eggs of this handsome little Kite, but A. F. Davidson, Esq., of the Revenue Survey, a great sportsman and accurate observer of birds, told me that he obtained a young bird of this species and two eggs. The eggs were of a pure white colour, and about as large as the egg of the Indian Blue Pigeon. They were laid during the month of December. The stomach of one of these birds contained a rat.

From the colour of the eggs, and the manner in which the radiating hairs between the eye and beak meet over the ridge of the beak, it has struck me that this bird approaches nearer to the family of the Harriers than that of the Kites. Dr. Jerdon, in his notes, also says that "it frequents long grass and grain fields, over which it may be seen to hover like the Kestrel."

Subfamily BUTEONINÆ.

Genus MILVUS.

MILVUS AFFINIS. COMMON INDIAN KITE.

This is one of the most common, if not the commonest bird of prey to be found in India. Over every cantonment, town and village they are to be seen, sweeping round in graceful circles, ever and anon making a swoop, as their quick eye descries some offal thrown out from cook-room or hut, seizing it in their claws without alighting, and making their repast on the wing. So sudden and bold is their dash, that in two cases which occurred amongst my own servants, a Kite pounced on the contents of a plate which a servant was bringing from the cook-room, and was off almost before the man knew who the thief was, and whence he came. On another occasion the theft was not confined to meat, for either a silver fork or spoon was thus whipped up, and the thief, after being chased by the affrighted servant, and scared by his shouting, dropped it in a neighbouring garden. The poor servant doubtless thought that a Kite would never be suspected of having committed the theft. The food of this bird consists of every kind of animal refuse; and in providing two such efficient scavengers as this Kite and the Egyptian Vulture, in a country where all animal matter begins at once to decay and would form a constant source of pestilence, the hand of an all-wise and gracious God is clearly visible. The common Indian Kite builds its nest on tall trees, during the months of February, March and April. I saw a bird building as late as the 18th of April. The nest is composed of sticks, and contains as many as three eggs. I never found more than that number. The eggs are $2\frac{3}{20}$ inches in length and $1\frac{1}{2}\frac{3}{0}$ inch in breadth, varying a good deal in colour, but generally of a whitish ground, more or less blotched and spotted with reddish-brown; in some the markings are chiefly at the large end, in others at the small.

MILVUS PONDICERIANUS. BRAHMINY KITE.

The eggs of this fishing Kite I have never seen, but I transcribe a note of its nest and young: "Feb. 27, 1850. Found the nest and two young birds of a species of fishing Hawk; the young ones were covered with whitish down, that on the back of a pale brown colour. The nest, formed of sticks and lined with mud, was built on a tall tree on the banks of the Bheema River, where these birds are common." As far as my observations go, I should say that this bird is decidedly a fishing Hawk. I have never seen it but either sailing along the course of a river or in the vicinity of water.

Genus PERNIS.

PERNIS CRISTATA?

I have not been able to ascertain anything relating to the nesting or the eggs of this Buzzard, but I was informed by a Mhar who saw it, of a curious habit of this bird; that when about to feed on a

comb, these birds spread their tail, and with it drive off the bees before attacking it. This was told me by a villager in a portion of thickly-wooded country where these birds are common.

Genus BUTEO.

BUTEO TEESA, Gray.

This is one of the commonest Hawks in the Deccan. Its plaintive cry may be heard in almost every tope of trees. It is easily distinguished by its white throat and silvery-white eyes. Dr. Jerdon, in his 'Catalogue of Birds of India,' says: "It frequents topes as well as open country, where it may be seen seated on low trees and bushes, an ant-hill, or the banks of rivers, whence it pounces on mice, lizards, small snakes, and various large insects and their larvæ." In the stomach of one of these birds I found a small snake entire, said to be of a very venomous kind, and a large locust; in that of another the remains of a full-grown rock quail. I am not aware whether the eye of all or most of the *Falconidæ* is strengthened by a ring of bony plates, as is the eye of the Golden Eagle, but it is the case in this bird. The Teesa breeds during the months of March, April and May. The nest is composed of sticks laid on the forked branches of the babool, mango and other trees. It sometimes contains as many as four eggs, $1\frac{8}{10}$ inch in length and $1\frac{5}{10}$ inch in breadth, white, spotted and dashed with brown.

I am very much inclined to think that the Teesa migrates during the monsoon, and returns to the Deccan about September, as I used not to hear its peculiar cry from the end of May to the middle of that month. Mr. Elliot, in his notes, mentions that *Circus cyaneus* and *Falco peregrinus* also migrate during the hot season and monsoon. I never noticed any of the Harriers about until September or October. The name of the Teesa in Mharata is 'Surudmar,' and in Hindoostani, 'Girgootmar,' meaning in both languages, I believe, 'the destroyer of lizards.' This name also applies, or is applied, to the Kestrel Black-wing (*Elanus melanopterus*), and Harriers.

The eggs sent with the others, I believe are those of one of the Harrier family, but of which I am unable to say. Most probably they belong to *Circus cyaneus* or *Circus Montagui*, as these are the most common. *Circus cyaneus* (*C. pallidus*, Sykes) is exceedingly common in the Deccan. In the grass lands amongst the hills, where quails abound, I have observed these birds beating particular spots of ground in the most regular manner, and when shooting, have found such spots to yield the best sport. I was told by a gentleman of the Civil Service, an ardent sportsman, that when shooting near Belgaum, many of the quails have been carried off by the Harriers before the beaters had time to secure them. They will fly over a plot of grass land, scanning every foot of it, and in the most careful manner beat the hedges and strips of bush and grass between the fields. They feed on lizards, mice, and small birds. I have been told that these birds remain to breed in the Deccan.

Subfamily FALCONINÆ.

Genus FALCO.

FALCO LUGGUR.

Of the true Falcons, the Luggur is the most abundant on the tablelands of Western India. The top of a tall tree in the midst of cultivation is its favourite resort. It breeds during the months of March, April, and probably May, making its nest, like that of all the birds of prey, of twigs and sticks on a tall tree, and lays four eggs, $1\frac{9}{10}$ inch in length, and $1\frac{6}{10}$ inch in breadth, of a reddish-white ground, spotted with two shades of reddish-brown, and thickly mottled with red-brown at the larger end; some are of a more yellow colour. As the plumage of the young birds has been already noted, any further description is unnecessary. In the stomachs of two birds of this species I found the remains of lizards.

FALCO CHICQUERA.

This handsome little Falcon is also common in Western India. It is a bird of rapid flight, and peculiarly active and energetic in all its movements. The natives told me that it is a great enemy to the sparrows, killing numbers of them. Its shrill scream quite betokens its fierce character. Like the last-named Falcon it lays four eggs, smaller in size, of a yellow-brown, mottled with a darker shade of the same colour, particularly at the larger end; in length $1\frac{4}{10}$ inch, and nearly $1\frac{4}{10}$ inch in breadth. It breeds during the months of February and March.

FALCO TINNUNCULUS. KESTRIL.

I have not been able as yet to discover whether this bird breeds in the Deccan or not.

2. DESCRIPTION OF A NEW SPECIES OF CYPRIS.

By W. BAIRD, M.D., F.L.S.

In a collection of shells procured some years ago by the British Museum, from M. Parreyss of Vienna, were two species under the name of *Nuculina*, the *N. donaciformis* and *N. triangularis*. Neither of these, however, belong to the Mollusca, both species being Entomostracans, and belonging to two totally different genera. The former I have described and figured in the 'Proceedings of the Zoological Society' for 1849, (p. 89), under the name of *Estheria donaciformis*; the latter is the one now under consideration. It belongs to the genus *Cypris*, and I propose naming it *C. triangularis*. It may be characterized thus:—

CYPRIS TRIANGULARIS.

Shell or carapace of a triangular form, smooth and shining, of a transparent green colour; anterior and posterior extremities nearly of equal size; centre of carapace very gibbous; left valve overlapping the other at the lower margin.

Hab. Abeid, Kordofan. Mus. Brit.

3. MONOGRAPHS OF ELLOBIUM AND MELAMPUS, TWO GENERA
OF PULMONIFEROUS MOLLUSCA. BY H. AND A. ADAMS.

Genus ELLOBIUM, Bolten.

Head ending in a snout; tentacles subcylindrical; eyes situated at their inner bases. Pulmoniferous; respiring free air. Living on the land.

Shell oblong-oval, covered with a brown epidermis; spire short, obtuse; aperture narrow, elongated; inner lip with 2-3 large anterior plaits; outer lip thickened internally.

Otis, Humph., not Linn.—*Auricula*, Lamk., not Klein.—*Auriculus*, Montf.—*Marsyas*, Oken.—*Georula*, Swains.

The animals of this genus resemble in their habits those of *Pythia*, Bolten (*Scarabus*, Montfort), living in salt marshes and mangrove-swamps.

1. ELLOBIUM AURIS-MIDÆ, Linnæus.

Voluta auris-Midæ, Linn. Syst. Nat. ed. 12, p. 1186.—*Helix auris-Midæ*, Müll. Verm. p. 118. no. 311.—*Bulimus auris-Midæ*, Brug. Dict. no. 76.—*Auricula Midæ*, Lamk. Hist. viii. p. 323.

2. ELLOBIUM AURIS-JUDÆ, Linnæus.

Voluta auris-Judæ, Linn. Syst. Nat. ed. 12, p. 1187.—*Helix auris-Judæ*, Müll. Hist. Verm. p. 109. no. 310.—*Bulimus auris-Judæ*, Brug. Dict. no. 78.—*Auricula Judæ*, Lamk. Hist. viii. p. 324.—*Auric. protracta*, Beck, Ind. (var.).—*Auric. densata*, Beck, Ind. (var.).—*Auric. reticulata*, Anton, Cat. (var.).

3. ELLOBIUM SUBNODOSUM, Metcalfe.

Auricula subnodosa, Metc. Proc. Zool. Soc. 1851; Ann. and Mag. Nat. Hist. ser. 2. p. 67 (1853).

4. ELLOBIUM POLITUM, Metcalfe.

Auricula polita, Metc. Proc. Zool. Soc. 1851; Ann. and Mag. Nat. Hist. ser. 2, p. 67 (1853).

5. ELLOBIUM SHEEPMAKERI, Petit.

Auricula Sheepmakeri, Petit, Journ. de Conch. i. p. 404.

6. ELLOBIUM GRANULINUM, Mühlfeldt.

Auricula granulina, Mühlf. Anton, Verzeich.—*Auric. stagnalis*, Petit, Guér. Mag. 1835, p. 23.—*Auric. papillifera*, Küst. Chemn. Conch. Cab. (Auric.) p. 25. tab. 3. f. 9, 10.

7. ELLOBIUM TORNATELLIFORME, Petit.

Auricula tornatelliformis, Petit, Ann. Nat. Hist. xii. p. 437; Proc. Zool. Soc., Dec. 1842.

8. ELLOBIUM PALLIDUM, Sowerby.

Auricula pallida, Sow., Beechey's Voy. (Moll.) t. 38. f. 27; Küst. Chemn. Conch. Cab. (Auric.) p. 51. tab. 7. f. 8.

9. ELLOBIUM HELVACEUM, Philippi.

Auricula helvacea, Phil. Zeitschr. für Malacozool.

10. ELLOBIUM ELONGATUM, Parreyss.

Auricula elongata, Parr. in litt.; Küst. Chemn. Conch. Cab. (Auric.) p. 53. tab. 8. f. 6-8.

11. ELLOBIUM SUBULA, Quoy & Gaimard.

Auricula subula, Quoy & Gaim. Voy. Astrol. ii. pl. 13. f. 39, 40.

12. ELLOBIUM CEYLANICUM, H. & A. Adams. *E. testa oblongo-ovata, cornea, subdiaphana, longitudinaliter strigosa, transversim tenuissime corrugato-striata; anfractibus supremis punctatis, pallide fuscis; spira elevatiuscula, apice obtuso; apertura oblonga; columella oblique biplicata; labro intus incrassato, postice sinuato.*

Hab. Ceylon (Dr. Gardner). Mus. Cuming.

13. ELLOBIUM SIMPLEX, H. & A. Adams. *E. testa oblongo-ovali, crassiuscula, pallide fusca, nitida, spira elata, obtusa, anfractibus convexiusculis, postice decussatim striatis, ad suturas marginatis, ultimo longitudinaliter strigato; apertura oblonga; columella triplicata, plica postica evanida; labro vix incrassato, postice vix sinuato.*

Hab. —? Mus. Cuming.

14. ELLOBIUM INCRASSATUM, H. & A. Adams. *E. testa elongato-ovata, crassa, laevi, nitida, alba; spira elata, anfractibus quinque, convexiusculis; apertura oblonga, angusta; columella biplicata; labro incrassato, postice tenui et valde sinuato.*

Hab. Loon, island of Bohol. Mus. Cuming.

15. ELLOBIUM SEMIPLICATUM, H. & A. Adams. *E. testa subulato-cylindracea, spira obtusa, apice eroso, olivacea, laevi, nitida, anfractibus planis, longitudinaliter plicatis, ultimo postice plicato, antice laevigato; apertura angusta, postice coarctata; columella triplicata, plica postica valida, spirali; labro acuto, simplice, postice coarctato.*

Hab. Singapore (Lieut. Taylor). Mus. Cuming.

16. ELLOBIUM PUSILLUM, H. & A. Adams. *E. testa subulato-ovata, alba, nitida, laevi, spira producta, apice acuto; apertura oblonga, angusta; columella subcallosa, triplicata, plica postica valida, anterioribus parvis, obliquis; labro margine subincrassato, postice vix sinuato.*

Hab. Bais, island of Negros. Mus. Cuming.

17. ELLOBIUM ORYZA, H. & A. Adams. *E. testa elongato-ovali, alba, solida, nitida; spira elata, acuta; anfractu ultimo fascia alba, opaca cincto; apertura angusta; columella triplicata, plica postica valida, anterioribus parvulis, subobsoletis; labro intus incrassato vix bilirato, postice subsinuoso.*

Hab. Island of Annaa, Society Islands, under loose coral, high water. Mus. Cuming.

18. *ELLOBIUM OPARICUM*, H. & A. Adams. *E. testa subulato-ovali, gracili, lævi, fulva; spira elata, apice acuto; apertura angusta; columella antice vix truncata, triplicata, plica postica valida, duabus anterioribus subobsoletis, obliquis; labro acuto, simplice.*

Hab. Island of Opara, Society Islands. Mus. Cuming.

19. *ELLOBIUM SEMISculPTUM*, H. & A. Adams. *E. testa oblongo-ovata, subfusiformi, spira elata, obtusiuscula, pallide fusca; anfractibus convexiusculis, superne lineis granulosis, cœnfertis, transversis, inferne lævibus, anfractu ultimo superne granuloso, inferne (sub lente) minutissime granulato; apertura oblonga, antice dilatata; columella biplicata, plica postica valida, spirali; labro antice intus marginato, postice tenui, subsinuato.*

Hab. Gambier's Islands, South Seas. Mus. Cuming.

Genus MELAMPUS, Montfort.

Foot bifid posteriorly.

Shell ovato-conical, spire short, obtuse; aperture narrow, linear; inner lip with several transverse plaits; outer lip acute, internally plicate.

Pedipes, Blainv., not Adams.—*Melampa*, Schweigg.—*Conovula*, Féruss.—*Conovulus*, Lamk.—*Conovulum*, Sow.

1. MELAMPUS COFFEUS, Linnæus.

Voluta coffea, Linn. Syst. Nat. ed. 12, p. 1187.—*Voluta minuta*, Gmel. p. 3436. no. 6.—*Bulimus conformis*, Brug. Dict. no. 72.—*Conovulus conformis*, Encycl. pl. 459. f. 2, A. B.—*Conovula conformis*, Bowd. Elem. of Conch. t. 6. f. 25.—*Tornatella conformis*, Blainv. Malac. t. 27 bis, f. 4.—*Auricula conformis*, Féruss. Prod. p. 739.—*Conovulus coffeus*, Beck, Ind. Moll.—*Auricula conformis*, Pfeiff. Wiegman. Arch. 1840, Heft 3. p. 251. no. 39.

2. MELAMPUS UMLAASIANUS, Krauss.

Auricula Umlaasiana, Krauss, in litt.; Küst. Chemn. Conch. Cab. (Auriculacea) p. 43. tab. 6. f. 16-20.

3. MELAMPUS FUSCUS, Philippi.

Conovulus fuscus, Phil. in litt.—*Auricula fusca*, Küst. Chemn. Neuer Conch. Cab. (Auriculacea) p. 38. tab. 5. f. 18-20.—*Auric. leucodon*, Beck; Adams & Reeve, Zool. Voy. Samarang.

4. MELAMPUS FLAVUS, Gmelin.

Voluta flava, Gmel. Syst. Nat. p. 3436. no. 5.—*Auricula monile*, Quoy & Gaim. Voy. Astrol. ii. p. 166. tab. 13. f. 28-33.—*Voluta flava*, Dillw. Cat. i. p. 506. no. 17.—*Bulimus monile*, Brug. Encycl. Méth. no. 70.

5. MELAMPUS TABOGENSIS, C. B. Adams.

Auricula Tabogensis, C. B. Adams, Shells of Panama, p. 211. no. 314.

6. MELAMPUS BIDENTATUS, Say.

Melampus bidentatus, Say, Amer. Conch.—*Auricula cornea*, Desh. Encycl. Méth. Vers, p. 90. no. 9; Lamk. Hist. ed. Desh. tom. viii. p. 339. no. 28.

7. MELAMPUS PYRIFORMIS, Petit.

Auricula pyriformis, Petit, Proc. Zool. Soc. 1842; Ann. & Mag. Nat. Hist. xii. p. 437.

8. MELAMPUS PALLESCENS, Sowerby.

Melampus pallescens, Sow. Zool. Beechey's Voy. tab. 38. f. 11.—*Auricula pallescens*, Küst. Chemn. Neuer Conch. Cab. (Auriculacea) p. 51. tab. 5. f. 11.

9. MELAMPUS PHILIPPII, Küster.

Auricula Philippii, Küst. Chemn. Conch. Cab. (Auriculacea) p. 50. tab. 7. f. 23–25.—*Auricula Ceylanica*, Petit, Proc. Zool. Soc. 1842, p. 42.

10. MELAMPUS CORONULUS, C. B. Adams.

Auricula coronulus, C. B. Adams, Contrib. to Conch.

11. MELAMPUS BOREALIS, Conrad.

12. MELAMPUS LIVIDUS, Linnæus.

Voluta livida, Linn. Syst. Nat. ed. 12, p. 1187.—*Auricula livida*, Desh. Encycl. Méth. Vers, p. 91. no. 10.

13. MELAMPUS ATER, Mühlfeldt.

Conovulus ater, Mühlf. in litt.; Anton, Verzeich. p. 48. no. 1773.—*Auricula caffra*, Küst. Chemn. Conch. Cab. (Auriculacea) tab. 5. f. 6–8.—? *Conovulus Sciari*, Lesson.

14. MELAMPUS LUTEUS, Quoy & Gaimard.

Auricula lutea, Quoy & Gaim. Voy. Astrol., Zool. ii. p. 163. pl. 13. f. 25–27.—*Conovulus luteus*, Anton.—*Auricula Columbiensis*, Mühlf.

Subgenus TRALIA, Gray.

Foot posteriorly acute, entire.

Shell ovate, smooth; spire elevated; aperture narrow, linear, dilated anteriorly; inner lip usually with three oblique plaits; outer lip acute, sinuated posteriorly, internally with one or more transverse elevated ridges.

15. MELAMPUS (TRALIA) PUSILLUS, Gmelin.

Voluta pusilla, Gmel. p. 3436. no. 7.—*Bulimus ovulus*, Brug. Dict. no. 71.—*Auricula ovula*, Féruss. Prod. p. 104. no. 21.—*Auric. nitens*, Lamk. viii. 333.—*Conovulus nitens*, Cuv.—*Voluta triplicata*, Donov. B. S. t. 138.—*Auric. leucodonta*, Nuttall, MSS.

16. MELAMPUS (TRALIA) PANAMENSIS, C. B. Adams.

Auricula Panamensis, C. B. Adams, Shells of Panama, p. 209. no. 312.

17. MELAMPUS (TRALIA) OLIVULA, Moricand.
Auricula olivula, Moric. Mém. de la Soc. de Genève, viii. ; Küst. Chemn. Conch. Cab. (Auriculacea) p. 33. tab. 3. f. 11-13.—*Auric. oliva*, D'Orb. Moll. p. 189. t. 12. f. 8-10.
18. MELAMPUS (TRALIA) INFREQUENS, C. B. Adams.
Auricula infrequens, C. B. Adams, Shells of Panama, p. 209. no. 311.
19. MELAMPUS (TRALIA) EXIGUUS, Lowe.
Melampus exiguus, Lowe, Mon. Melamp. Zool. Journ. v. p. 291. pl. 13. f. 6, 7.
20. MELAMPUS (TRALIA) PELLUCIDUS, Cooper.
Conovulus pellucidus, Cooper, MSS. Mus. Brit.
21. MELAMPUS (TRALIA) FASCIATUS, Chemnitz.
Voluta fasciata, Chemn. ix. pt. 2. p. 44. tab. 121. f. 1041.—*Auricula fasciata*, Desh. Encycl. Méth. Vers, p. 90. no. 8.—*Conovulus fasciatus*, Anton, Verzeich. p. 48. no. 1774.
22. MELAMPUS (TRALIA) KÜSTERI, Krauss.
Auricula Küsteri, Krauss ; Küst. Chemn. Neuer Conch. Cab. (Auriculacea) p. 34. tab. 4. f. 10-13.—*Auric. monile*, Reeve, Conch. Syst. t. 187. f. 8.
23. MELAMPUS (TRALIA) MAURUS, Mühlfeldt.
Conovulus maurus, Mühlf. in litt. ; Anton, Verzeich. p. 48. no. 1778 ; Küst. Conch. Cab. (Auriculacea) tab. 5. f. 12-14.
24. MELAMPUS (TRALIA) ELONGATUS, Petit.
Conovulus elongatus, Petit, Mag. de Zool. ser. 2. vii. pl. 138.
25. MELAMPUS (TRALIA) ANGIOSTOMA, Deshayes.
Auricula angiotoma, Desh. Encycl. Méth. Vers, ii. p. 92. no. 16 ; Mag. de Zool. 1830, i. tab. 11.
26. MELAMPUS (TRALIA) FLORIDIANUS, Shuttleworth.
Auricula Floridiana, Shuttleworth.
27. MELAMPUS (TRALIA) CINGULATUS, Pfeiffer.
Auricula cingulata, Pfeiff. Wieg. Archiv, 1840, p. 251. no. 40 ; Küst. Chemn. (Auriculacea) tab. 6. f. 4, 5, 6 ?—*Auric. oliva*, D'Orb. Hist. de l'île de Cuba, t. 13. f. 8-10.
28. MELAMPUS (TRALIA) GLOBULUS, Férussac.
Conovulus globulus, Féruss. ; D'Orb. Voy. dans l'Amér. Mérid. ; Mag. de Zool. 1833.
29. MELAMPUS (TRALIA) PULCHELLUS, Petit.
Auricula pulchella, Petit, Proc. Zool. Soc. 1842 ; Ann. & Mag. Nat. Hist. xii. p. 437.

30. MELAMPUS (TRALIA) GRANIFER, MOUSSON.

Auricula granifera, Mouss. Land- und Süsswass. Moll. v. Java, p. 46. pl. 5. f. 9.

31. MELAMPUS (TRALIA) COSTATUS, QUOY & GAIMARD.

Auricula costata, Quoy & Gaim. Voy. Astrol. ii. p. 173. pl. 13. f. 43-46; Küst. Chemn. Conch. Cab. (Auriculacea) tab. 7. f. 5-7.

32. MELAMPUS OBOVATUS, H. & A. ADAMS. *M. testa obversim conica, basi attenuata, spira obtusa, nitidiuscula, corneo-fusca, sæpius fasciis inæqualibus transversis ornata, longitudinaliter strigosa; anfractu ultimo basi transversim striato, postice gibboso; apertura angusta; columella biplicata, plica postica valida, transversa; labro acuto, intus bilirato.*

Hab. Liberia (Dr. Parkins). Mus. Cuming.

33. MELAMPUS ZEALANDICUS, H. & A. ADAMS. *M. testa ovata, cornea, castanea, subpellucida, nitida, longitudinaliter strigosa; spira elevatiuscula, apice acuto; anfractibus planis, ultimo postice subgibboso; apertura angusta; columella biplicata, plica postica validiori; labro margine acuto, intus valde lirato, liris multis albidis.*

Hab. New Zealand. Mus. Cuming.

34. MELAMPUS COMMODUS, H. & A. ADAMS. *M. testa oblongo-ovata, casiana, nitidiuscula; spira elata, acuta; anfractibus longitudinaliter plicatis, ultimo lævigato, vel substrigato; apertura angusta, oblonga; columella antice uniplicata; labro acuto, intus liris tribus elevatis, transversis instructo.*

Hab. New Zealand. Mus. Cuming.

35. MELAMPUS LIBERIANUS, H. & A. ADAMS. *M. testa oblonga, ovato-conica, spira brevì, olivaceo-fusca, fasciis pallidis, transversis, inæqualibus ornata, lævigata, nitidiuscula, postice et antice transversim striata; apertura angusta, in medio coarctata; columella biplicata, plica antica subobsoleta; labro acuto, in medio inflexo, intus multilirato.*

Hab. Liberia, W. Africa (Dr. Parkins). Mus. Cuming.

36. MELAMPUS COSTELLARIS, H. & A. ADAMS. *M. testa ovata, brunnea, longitudinaliter costata; spira subelevata, apice obtuso; anfractu ultimo postice vix angulato; apertura oblonga; columella biplicata, plica postica transversa, valida; labro acuto, antice incrassato, albido-marginato, intus lævi.*

Hab. New Zealand (Mr. Strange). Mus. Cuming.

37. MELAMPUS (TRALIA) NITIDULUS, H. & A. ADAMS. *M. testa elongato-ovali, lævissima, fusca, spira elata; apertura angusta, elongata; columella triplicata, plica postica callosa; labro margine vix incrassato, intus unilamellato.*

Hab. Island of Bohol. Mus. Cuming.

38. MELAMPUS (TRALIA) MITRALIS, H. & A. Adams. *M. testa elongato-ovali, spira producta, apice obtuso, livido, pallide castanea, fusco-fasciata, lævi, nitida; anfractibus supremis longitudinaliter plicatis, ultimo basi subgibboso; apertura angusta; columella antice uniplicata, plica spirali; labro acuto.*

Hab. —? Mus. Cuming.

39. MELAMPUS (TRALIA) EXARATUS, H. & A. Adams. *M. testa ovata, fusca, spira elata, apice obtuso; anfractibus planis, transversim liratis, longitudinaliter decussatim striatis; apertura oblonga, in medio subdilata; columella biplicata, plicis validis, postica spirali; labro margine acuto, in medio subangulato.*

Hab. Catbalonga, island of Samaar. Mus. Cuming.

4. DESCRIPTIONS OF NEW SPECIES OF SHELLS, FROM THE COLLECTION OF H. CUMING, ESQ.

By M. G. P. DESHAYES.

1. BATISSA INSIGNIS, Desh. *B. testa ovato-orbiculari, oblique inæquilaterali, tumida, tenui, intus violacea, epidermide nigrovirescente, nitida vestita, in latere antico late sulcata, sulcis remotis, ad lunulam sæpius inter se conjungentibus; umbonibus prominentibus, erosis, antice inclinatis; cardine angusto, obliquo, inæqualiter tridentato; dentibus in valva sinistra angustioribus, mediano bifido, in dextra crassioribus, simplicibus; dentibus lateralibus angustis, postico valvæ sinistræ laminato, apice regulariter serrulato.*

Hab. Calamang, Island of Luzon, Philippines.

2. BATISSA TRIQUETRA, Desh. *B. testa trigona, obliqua, inæquilaterali, cuneiformi, lævigata, epidermide nigra vestita, depressiuscula; margine antico rectilineo, postico valde convexo, dilatato, inferiore vix arcuato; umbonibus profunde erosis; lamina cardinali angusta, dentibus cardinalibus tribus, inæqualibus, brevibus, subcanaliculatis; lateralibus elongatis, angustis, subæqualibus, antico cardine adnato, postico remoto; valvis tenuibus, intus albis.*

Hab. Philippine Islands; Australia.

3. BATISSA PRODUCTA, Desh. *B. testa suborbiculari, valde obliqua, inæquilaterali, depressiuscula, crassa, solida, transversim late et obsolete plicata, vel subundulata, epidermide polita, atrovirescente vestita, intus superne alba, postice inferneque violacea; umbonibus magnis, productis, antice obliquatis; cardine lato, crasso, valde obliquo, inæqualiter tridentato, dentibus majoribus superne obsolete canaliculatis, lateralibus validis, antico crasso, obsolete rugoso vel striato, postico compressiore et paulo longiore; latere antico brevi, rotundato, postico dilatato.*

Hab. Philippine Islands.

4. **BATISSA LENTICULARIS**, Desh. *B. testa orbiculari, tantum alta quam lata, æquilaterali, subsquatina, lenticulari, turgidula, epidermide nitidissima, atro-virescente vestita, lineis longitudinalibus, tenuissimis, obsoletis irregulariter in medio radiata, intus albo-violacea; latere antico posticum æquante et æqualiter obtuso; cardine angusto, tridentato; dentibus majoribus superne canaliculatis, mediano valvæ dextræ majori; dentibus lateralibus subæqualibus, antico crassiore, tenue rugoso, postico laminato, obsolete striato; umbonibus parvis, acutis, integris, oppositis.*

Hab. Philippine Islands (Cuming).

5. **BATISSA CORBICULOIDES**, Desh. *B. testa oblique triangulari, inæquilaterali, tumida, crassa, solida, epidermide squalide viridi-fuscescente vestita, transversim inæqualiter sulcata et striata; umbonibus productis, erosis, obliquis; lunula angulo obtusissimo notata, magna, ovato-lanceolata, lævigata; area posticali rugis irregularibus, obsoletis, divaricatis corrugata; cardine lato, crasso, inæqualiter tridentato, dentibus compressis, divergentibus, simplicibus, dentibus lateralibus sicut in Corbiculis elongatis, angustis, tenue striatis, antico paulo brevioribus; valvis intus albis, in margine postico violaceo-maculatis.*

Hab. New Guinea (Jukes).

6. **BATISSA HUMEROSA**, Desh. *B. testa trigona, inæquilaterali, cuneiformi, superne gibbosa; transversim inæqualiter striato-sulcata, epidermide nigrescente vestita, intus alba, in medio pallide purpureo tincta; latere antico rectilineo, valde declivi, inferne obtuse angulato, margine dorsali leviter convexo, declivi, margine inferiore parum arcuato, rugis aliquibus in latere postico divergentibus; umbonibus profunde erosis; cardine lato, tridentato, dentibus inæqualibus, simplicibus, medianis majoribus; dente laterali antico cardine adnato, irregulariter corrugato, postico longiore, angustiore, stris brevibus notato.*

Hab. New Guinea.

7. **BATISSA MEGADESMA**, Desh. *B. testa ovato-transversa, magna, crassa, ponderosa, inæquilaterali, antice brevi, obtusa, rotundata, fusco-nigrescente late et irregulariter transversim undulata, antice sulculosa; latere supero et postico sulco obsoleto decurrente distincto; ligamento maximo, elongato, cylindraceo, in medio carinato; umbonibus erosis; valvis intus candidissimis; cardine crasso, in utraque valva tridentato, dente posticali valvæ sinistræ angusto, elongato, dentibus obliquis; dente laterali antico cardine proximo, irregulariter sulcato, posticali angusto, cardine remotissimo.*

Hab. —?

8. **BATISSA ATRATA**, Desh. *B. testa orbiculari, sublenticulari, æquilaterali, transversim obsolete striato-sulcata, intus extus-*

que aterrime violacea; umbonibus brevibus, minimis, oppositis, approximatis, apice decorticatis; valvis tenuibus; cardine angusto, inæqualiter tridentato; dente antico in utraque valva angusto; dentibus lateralibus brevioribus, angustis, oblique sulcato-rugosis; impressione pallii postice leciter inflexa.

Hab. — ?

9. CYRENA INQUINATA, Desh. *C. testa orbiculato-trigona, tur-gida, inflata, subcordiformi, inæquilaterali, epidermide squalide fusca, fuliginosa, dense et irregulariter lamellosa vestita; umbonibus tumidis, profunde erosis; margine superiore antico declivi, rectilineo, postico convexiusculo, inferiore subsemicirculari; valvis solidiusculis, intus albis; cardine angusto, arcuato, tridentato; dentibus inæqualibus, brevibus, obliquis, parallelis, angustis, parum prominentibus, duobus bifidis; dentibus lateralibus minimis, brevibus, antico prominentiore; ligamento brevi, partim infosso; impressione pallii prope marginem decurrente.*

Hab. China (rivers).

10. CYRENA FALLAX, Desh. *C. testa ovato-trigona, plus minusve tumida, crassa, solida, in medio ventricosa, epidermide squalide fusciscente, ferruginea, in junioribus flavescente vestita, transversim irregulariter striata; latere antico brevior, superne fere rectilineo, declivi, rotundato, inferiore margine postico superiore recto, declivi; extremitate postica sensim attenuata, breviter truncata; area plana, lævigata, angulo obtusissimo circumscripta; cardine satis lato, dentibus tribus inæqualibus, in valva dextra crassioribus, majoribus, bilobatis; dente laterali antico compresso, brevi, postico longiore.*

Long. 81 mill., haut. 69, épaiss. 48.

Hab. Philippine Islands; Australia (Cuming).

11. CYRENA CONJUNCTA, Desh. *C. testa orbiculato-trigona, crassa, solida, ventricosa, subæquilaterali, utroque latere obtusa, rotundata, inferne regulariter arcuata, margine antero-supiore declivi, rectilineo, postico convexo, epidermide viridi, fusciscente, transversim regulariter tenue lamellosa vestita; umbonibus tumidis, obliquis, brevibus, obtusis, erosis; ligamento brevi, angusto, immerso; valvis intus albis; dentibus cardinalibus tribus inæqualibus, postico valvæ dextræ latiore, inæqualiter bifido, mediano eminentiore, acuto, profunde bilobato; dentibus lateralibus parvis, distantibus, antico eminentiore, conico, compresso.*

Hab. — ?

12. CYRENA LAUTA, Desh. *C. testa ovato-transversa, subtrigona, inæquilaterali, superne inferneque convexiuscula, postice subtruncata, antice valde declivi, rectilinea, crassa, solida, in medio convexa; epidermide fusca, nitida, ienue irregulariter striata; umbonibus depressis, brevibus, apice acutis, approximatis, sæpius erosis; lamina cardinali lata, dentibus cardina-*

libus tribus, obliquis, angustis, elongatis, approximatis, fere parallelis, superne canaliculatis, antico valvæ dextræ dimidia parte brevior; dentibus lateralibus subæqualibus, postico valde remoto.

Hab. —?

13. *CYRENA SIMILIS*, Desh. *C. testa ovato-trigona, oblonga, inæquilaterali, in medio tumida, transversim distanter striata, epidermide fusciscente, ferrugineo-nitente vestita, umbonibus minimis decorticatis; latere antico brevi, rotundato, obtuso, latere postico superne convexiusculo, declivi, sensim attenuato, extremitate breviter subtruncato; dentibus primariis tribus, duobus subæqualibus, apice inæqualiter bifidis; dentibus lateralibus minimis, antico valvæ sinistræ conico, depressiusculo, postico longiore.*

Long. 77 mill., haut. 65, épais. 39.

Hab. Manilla.

14. *CYRENA AFFINIS*, Desh. *C. testa oviformi, ovato-transversa, inæquilaterali, ventricosa, crassa, solida, epidermide tenui, fusco-ochracea, lævigata induta, transversim inæqualiter striata, subcontabulata; umbonibus minimis, depressis, integris, vix prominentibus; latere antico brevi, late rotundato, postico attenuato, obtuso; cardine angusto, dentibus tribus angustis, duobus majoribus profunde canaliculatis, dentibus lateralibus æqualibus, antico acutiusculo, postico valde remoto.*

Long. 54 mill., haut. 45, épais. 32.

Hab. Australia (Cuming).

15. *CYRENA OVIFORMIS*, Desh. *C. testa ovato-transversa, crassa, solida, turgida, inæquilaterali, transversim irregulariter incrementis striata, area lunulaque lævigatis, epidermide tenui, brunnea vel flavescens vestita, antice brevi, declivi, obtusa, postice magis attenuata; latere superiore postico convexiusculo; umbonibus brevibus, depressis, apice acuminatis, sæpius erosis; ligamento angusto, elongato, vix immerso; valvis profundis, intus albis; cardine angusto, arcuato, inæqualiter tridentato; dentibus divaricatis, duobus in utraque valva inæqualibus, apice bilobatis; dente laterali antico, conico, crasso, prominente, compresso, dente postico longiore, angustiore.*

Long. 77 mill., haut. 61, épais. 44.

Hab. Basilan, Philippine Islands; Port Essington.

16. *CYRENA VENTRICOSA*, Desh. *C. testa ovato-transversa, sub-trigona, inæquilaterali, in senioribus crassa, solida, ponderosa, in medio turgida, epidermide squalide fusciscente aut rubiginosa, tenui, inferne posticeque breviter lamellosa et atrata vestita, intus candidissima, antice superne arcuato-declivi, obtusa, postice sensim attenuata, truncata, margine superiore dorsali rectilineo, declivi; umbonibus parvis, parum obliquis; cardine angusto, tridentato, dentibus inæqualibus, majoribus*

bifidis, subparallelis, dentibus lateralibus crassis, compressiusculis, postico paulo longiore; ligamento angusto, partim immerso; area posticali planata.

Long. 91 mill., alt. 80, lat. 50.

Hab. Philippine Islands; Australia.

17. *CYRENA MACTROIDES*, Desh. *C. testa ovato-transversa, depressa, inæquilaterali, epidermide viridi-glauescente et transversim striato-laminata vestita, postice lamellis appressis, imbricatis; umbonibus brevibus, obliquis, approximatis, integris; latere antico brevi, late obtuso, postico superne declivi, attenuato, subangulato; cardine angusto; dentibus cardinalibus compressis, majoribus apice profunde furcatis; lateralibus compressis, brevibus, in fossulis angustis profundisque valvulæ dextræ receptis; ligamento angusto, semi-immerso.*

Long. 98 mill., alt. 78, lat. 42.

Hab. —?

18. *CYRENA DECIPIENS*, Desh. *C. testa ovato-subtrigona, tumida, inæquilaterali, parum crassa, epidermide viridi, lamellis transversis, distantibus, crispis instructa vestita, lamellis postice multo numerosioribus, appressis, erectis, umbonibus minimis, decorticatis, vix obliquis; latere antico brevior, superne convexiusculo, declivi, inferne obtuso, postico retundato; valvis intus albis; cardine angusto, tridentato, dentibus majoribus profunde furcatis, lateralibus angustis, compressis, antico valvæ sinistrae furcato, fossula valvæ dextræ antice marginata.*

Long. 86 mill., alt. 75, lat. 43.

Hab. —?

19. *CYRENA PALLIDA*, Desh. *C. testa orbiculato-trigona, magna, solida, in medio convexa, inæquilaterali, antice posticeque declivi, rectilinea, extremitate posticali attenuata, brevi, truncata, epidermide tenui, luteo-flavescente, late striata vestita; umbonibus parvis, obtusis; area posticali plana, angulo obtusissimo circumscripta; ligamento brevi, angusto, partim immerso; valvis solidis, intus candidissimis; cardine angusto, tridentato, dentibus angustis, duobus in utraque valva bifidis, dente laterali antico crasso, conico, compresso, posticali elongato, compresso.*

Hab. —?

20. *CYRENA DIVARICATA*, Desh. *C. testa ovato-subcirculari, inæquilaterali, tumida, crassa, solida, epidermide fusco-nigrescente vestita, transversim inæqualiter obsolete striata, rugis undulatis, irregularibus, in latere postico divergentibus; umbonibus obliquis, profunde erosis; latere antico brevior, superne recto, declivi, in medio attenuato, subangulato, latere postico lato, dilatato, obtuse subtruncato; lamina cardinali lata, plana; dentibus primariis tribus inæqualibus, angustissimis, in valva*

sinistra duobus latis, valde pediculatis, in valva dextra profunde canaliculatis; dentibus lateralibus minimis, antico conico, acuto, postico oblongo, angusto.

Hab. New Guinea.

21. *CYRENA SUBLOBATA*, Desh. *C. testa ovato-transversa, subquadrangulari, valde inæquilaterali, tumidiuscula, epidermide viridi-nigrescente, transversim striata et taminosa vestita; laminis crispis, inferne posticeque numerosioribus; latere antico brevissimo, declivi, fere rectilineo, inferne obtuso, marginibus superiore et inferiore subparallelis, æqualiter convexiusculis, latere postico late truncato, sulco profundo flexuraque distincta quasi sublobato; cardine angusto, dentibus inæqualibus tribus, valde obliquis, in valva sinistra angustioribus, in dextra validioribus, apice profunde et inæqualiter bilobatis; dente laterali antico conico, acuto, postico elongato, compresso, extremitate postica remoto.*

Long. 100 mill., *alt.* 85, *lat.* 50.

Hab. — ?

22. *CYRENA SINUOSA*, Desh. *C. testa ovato-rotundata, tumida, cordiformi, solida, valde inæquilaterali, epidermide fusco-fuliginosa, transversim tenue lamellosa vestita; latere antico brevi, rotundato, postico subtruncato, latere supero-posticali sulco profundo, sinuoso, decurrente separato; umbonibus tumidis, brevibus, sæpius erosis; ligamento angusto, partim infosso; valvis intus albis; cardine crasso, utroque latere tridentato, dentibus obliquis, mediano et postico valvæ dextræ bifidis; dentibus lateralibus brevibus, antico crasso, conico, apice acuto.*

Hab. The river Panimbang, Java. *Brit. Mus.*

23. *CYRENA IMPRESSA*, Desh. *C. testa ovato-subcirculari, obscure subquadrangulari, valde inæquilaterali, turgida, medio-criter crassa; epidermide viridi-glaucescente, transversim tenuissime laminata, postice inferneque atro-virente, lamellis sæpius crispis; umbonibus minimis, oblique antice curvatis, decorticatis, acutis, parum prominentibus; latere antico declivi, rectilineo, inferne obtuso; margine superiore convexiusculo, postico latere subtruncato, sulco impresso ab umbone descendente distincto; lamina cardinali lata, dentibus primariis tribus angustis, elongatis, prominentibus, apice profunde furcatis, dente laterali antico conico, brevi, compresso, postico longiore.*

Long. 92 mill., *alt.* 87, *lat.* 52.

Hab. Java (Jukes); Philippine Islands (Cuming); Australia.

24. *CYRENA COMPTA*, Desh. *C. testa ovato-trigona, ventricosiuscula, subæquilaterali, antice et postice fere æqualiter declivi, antice paulo brevior, rotundato, postice obtuso, paululum attenuato, epidermide tenui, nitente, flavido-virescente, tenue striata vestita; latere postico sulco obsolete notato;*

umbonibus minimis, obtusis, decorticatis; cardine angusto, tridentato, dentibus angustis, basi paulo angustioribus, apice profunde bilobatis, lateralibus compressis, antico prominente, acuto, postico longiore.

Long. 72 mill., alt. 63, lat. 38.

Hab. — ?

25. CYRENA INCERTA, Desh. *C. testa ovato-suborbiculari, ventricosa, inæquilaterali, parum crassa, transversim irregulariter striata, striis tenuibus, profundis, epidermide squalide fuscescente, postice nigrescente et nitente vestita; umbonibus minimis, integris, parum obliquis, valde approximatis, lunula in medio prominente; antico latere brevi, late rotundato, postico declivi, attenuato, extremitate subtruncato; cardine angusto, tridentato, dentibus minimis, angustis, inæqualibus, majoribus profunde furcatis, lateralibus inæqualibus, compressis, antico majore.*

Long. 74 mill., alt. 65, lat. 40.

Hab. — ?

26. CYRENA ESSINGTONENSIS, Desh. *C. testa ovato-suborbiculari, subtriangulari, inæquilaterali, transversim striata, striis inæqualibus, epidermide viridi-fuscescente, postice nigrescente vestita; latere antico brevior, rotundato, superne leviter arcuato, declivi, postico paululum angustior; cardine angusto, inæqualiter tridentato, dentibus prominentibus, apice profunde fissis, basi coarctatis, subpediculatis, dentibus lateralibus parvis, antico majore, conico, fossula valvulæ dextræ profunda, superne canaliculata, dente cardinali ejusdem valvulæ oblique prominente.*

Long. 73 mill., alt. 67, lat. 38.

Hab. Port Essington (Cuming).

27. CYRENA JUKESEI, Desh. *C. testa ovato-trigona, turgidula, inæquilaterali, transversim irregulariter striata, epidermide nitida, flavicante, pallide virescente et brevissime laminata vestita; latere antico brevi, superne fere rectilineo, declivi, postico rotundato, superne convexiusculo; valvis intus albis; umbonibus minimis, brevibus, antice obliquatis; cardine angusto, tridentato, dentibus subæqualibus, duobus majoribus apice bifidis, angustis, lateralibus subæqualibus, conicis, compressis.*

Long. 66 mill., alt. 52, lat. 34.

Hab. Cape Upstart, Australia.

28. CYRENA PLACIDA, Desh. *C. testa suborbiculari, sublenticulari, inæquilaterali, in medio turgidula, epidermide squalide fuscescente, tenuissime striata vestita; umbonibus brevibus, erosis, vix prominentibus; latere antico brevior, late rotundato, postico truncato, angulo decurrente obtusissimo separato; cardine lato, dentibus inæqualibus, angustis, elongatis,*

subparallelis, depressis, apice late canaliculatis, dentibus lateralibus subæqualibus, depressis, compressis, postico minore.

Long. 54 mill., alt. 48, lat. 28.

Hab. —?

29. CYRENA DURA, Desh. *C. testa ovato-subrotundata, ventricosa, inæquilaterali, crassa, solida, ponderosa, transversim irregulariter striato-rugosa; epidermide squalide fuscescenti-ochracea, impolita; umbonibus minimis, depressis, obliquis, decorticatis; lunula indistincta, in medio producta; latere antico late rotundato, postico æqualiter rotundato, obscure subtruncato, angulo obtusissimo decurrente notato; cardine lato, solido, dentibus tribus primariis inæqualibus, crassis, apice emarginatis; dente laterali antico brevi, conico, acuto, compressiusculo, cardine approximato, postico oblongo, depresso, remoto; linea pallii sub impressione musculari postica breviter sinuosa.*

Long. 70 mill., alt. 63, lat. 43.

Hab. —?

30. CYRENA ARCTATA, Desh. *C. testa trigona, inflata, cordiformi, solidissima, valde inæquilaterali, transversim regulariter striata, epidermide atro-virente nitente, vestita, intus alba, sæpius impressionibus muscularibus violaceis; umbonibus magnis, turgidis, obliquis; latere antico brevi, declivi, rotundato, postico attenuato, subtruncato, angulo decurrente obtuso circumscripto, area lunulaque lævigatis; cardine angusto, brevi, crasso, dentibus primariis tribus inæqualibus, parvis, approximatis, simplicibus; dentibus lateralibus crassis, subæqualibus, prominentibus.*

Long. 36 mill., alt. 36, lat. 30.

Hab. Maracaibo.

31. CYRENA ÆQUILATERA, Desh. *C. testa trigona, depressiuscula, æquilaterali; lateribus subæqualibus; epidermide squalide fusca vel griseo-fuscescente, striata, postice squamosa; latere antico paulo brevior et posticali rectilineis, inferiore parum arcuato; umbonibus parvis, depressis, oppositis, approximatis; latere postico plano, angulo obtusissimo circumdato; valvis tenuibus, intus albis, in fornice pallide aurantiis; cardine angustissimo, tridentato; dentibus parvis, inæqualibus, divaricatis, duobus in valvula sinistra bifidis, dentibus lateralibus parvis, remotis, fossula valvæ sinistrae anguste canaliculata usque ad basin dentis antici.*

Hab. Cayenne (rivulets).

32. CYRENA (ANOMALA) INSIGNIS. *C. testa ovato-cordiformi, turgida, crassiuscula, inæquilaterali, epidermide fusco-virente, multilaminosa vestita, lamellis crispis, multo numerosioribus ad margines; umbonibus magnis, tumidis, decorticatis, parum obliquis, oppositis; latere antico paulo brevior, late rotundato,*

postico lato, truncato, obtuse angulato; cardine angusto, crasso, tridentato; dentibus inæqualibus, divergentibus; lateralibus inæqualibus, antico majore, cónico, basi ovali, postico remoto, angusto; valvis intus albis, latere postico violaceo; sinu pallii angustissimo, acutissimo, profundo, oblique ad umbones ascendente.

Long. 50 mill., alt. 44, lat. 35.

Hab. Bay of California.

33. CYRENA SUBQUADRATA. *C. testa ovato-subquadrangulari, transversa, inæquilaterali, tumida, solidiuscula, transversim tenue et irregulariter striata, striis obsoletis, epidermide viridiflavescente, ad margines multilaminosa vestita; umbonibus depressiusculis, decorticatis, parum obliquis; latere antico superne parum dilatato, antice oblique subtruncato, postico superne leviter arcuato, oblique late truncato, inferne angulato; cardine satis lato, tridentato, dentibus angustis, approximatis, divergentibus, lateralibus inæqualibus, antico crasso, conico, brevi, postico angustiore remoto; valvis intus albis, in margine postico violaceis.*

Long. 45 mill., alt. 39, lat. 30.

Hab. California.

34. CYRENA (ANOMALA) NITIDULA, Desh. *C. testa ovato-transversa, turgidula, tenui, fragili, inæquilaterali, transversim tenue et obsolete striata, epidermide viridi, subnitente, tenuissime laminosa vestita; umbonibus tumidiusculis, acutis, oppositis; latere antico paulo brevior, obtuso, postico superne declivi, parum attenuato, rotundato vel subtruncato; cardine angustissimo, dentibus primariis tribus inæqualibus, angustissimis, divergentibus, majoribus apice anguste fissis, lateralibus subæqualibus, distantibus, minimis, in valva dextra duplicatis, antico crassiore; sinu pallii brevi, triangulari, acuto; valvis intus pallide violaceis, ad margines saturationibus.*

Long. 28 mill., alt. 25, lat. 17.

Hab. —?

35. CYRENA NOTABILIS, Desh. *C. testa ovato-transversa, subquadrilatera, depressiuscula, inæquilaterali, transversim tenue et irregulariter striata, albo-lutescente, sub epidermide tenui, fuscescente; latere antico brevi, obtuso, postico late truncato, superiore et inferiore rectis, parallelis; umbonibus obliquis, integris, approximatis; ligamento elongato, cylindræo, producto; valvis intus albo-lutescentibus, in latere postico macula intense violacea intus extusque notatis; cardine tridentato, dentibus inæqualibus, obliquis, divaricatis, dente laterali antico parvo, conico, acuminato, postico obsoleto, remotissimo.*

Hab. Peru (at the mouths of rivers).

36. CYRENA ANOMALA. *C. testa trigona, valde inflata, cordiformi, valde inæquilaterali, tenui, fragili, transversim tenue et*

obsolete striata, epidermide viridi, tenue striata induta, striis ad margines et postice laminoso-crispis; umbonibus magnis, acutis, revolutis, oppositis, violaceis; latere antico brevior, late semicirculari, postico attenuato, conico, rostrato, acuminato; area plana, angulo obtusissimo circumscripta; cardine angustissimo, dentibus tribus primariis minimis, approximatis, subæqualibus, divergentibus, mediano profunde fisso; dentibus lateralibus subæqualibus, distantibus, compressis, laminatis, in valva dextra duplicatis, antico sulco profundo margine separato.

Long. 50 mill., alt. 40, lat. 34.

Hab. Bay of Caraccas; Peru.

37. CYRENA (ANOMALA) CUMINGII. *C. testa ovato-subtrigona, inæquilaterali, tumida, cordiformi, satis solida, transversim inæqualiter tenuissime striata, epidermide fusco-virescente, inferne lamellosa vestita; umbonibus magnis, prominentibus, oppositis, decorticatis, approximatis; latere antico brevi, late rotundato, postico attenuato, superne declivi, extremitate truncato, angulo obtuso, decurrente circumscripto; cardine angusto, in medio paulo latiore; dentibus tribus primariis inæqualibus, approximatis, angustis, apice profunde bifidis, lateralibus magnis, æquidistantibus, antico paulo majore, conico, acuto; valvis intus candidissimis.*

Long. 60 mill., alt. 52, lat. 44.

Hab. Central America.

38. CYRENA (ANOMALA) ISOCARDIOIDES. *C. testa orbiculato-subtrigona, inæquilaterali, turgida, cordiformi, tenui, fragili, tenuissime transversim inæqualiter striata, epidermide olivacea, nigro-conulata vestita; umbonibus magnis, subinvolutis, oppositis, atro-violaceis; latere antico regulariter late semicirculari, postico superne declivi, attenuato, subrostrato; area plana, ovato-lanceolata, angulo lato, obtuso, decurrente circumscripta; cardine angustissimo, dentibus primariis tribus minutissimis, approximatis, subæqualibus, duobus anticis parallelis, postico divaricato; dentibus lateralibus minimis, subæquidistantibus, margine sulco angusto, profundo separatis, in valva dextra duplicatis; pallii impressione margine inferiore proxima; valvis intus albis, utroque latere violaceo maculatis.*

Long. 54 mill., alt. 53, lat. 41.

Hab. Columbia.

39. CYRENA (ANOMALA) ANGULATA. *C. testa trigona, turgida, æquilaterali, solidula, lævigata, epidermide squalide fuscescente vestita; umbonibus minimis, depressis, oppositis, latere antico atque postico æqualiter convexiusculis et declivibus; latere antico obtuso, subangulato, postico angulato, subrostrato; margine inferiore ventricosus; cardine angusto, dentibus primariis tribus minimis, angustis, duobus majoribus apice profunde fissis; dentibus lateralibus inæqualibus, com-*

pressis, antico magno, acuto, triangulari; valvis intus albis, seu roseo superne tinctis.

Long. 34 mill., alt. 30, lat. 20.

Hab. —?

40. CYRENA (ANOMALA) INFLATA. *C. testa orbiculato-subtri-gona, cordiformi, inflata, inæquilaterali, tenui, transversim tenue et inæqualiter striata, epidermide squalide fuscescente, breviter laminosa vestita; umbonibus magnis, prominentibus, oppositis, approximatis; latere antico breviusculo, superne concaviusculo, antice producto et obtuso, latere postico latiore, oblique truncato, angulo obtuso decurrente circumscripto; cardine angustissimo, dentibus tribus primariis inæqualibus, minimis, divergentibus, postico valvæ dextræ majore, profunde fisso, dentibus lateralibus subæqualibus, in valva dextra duplicatis, antico paulo crassiore.*

Long. 55 mill., alt. 52, lat. 42.

Hab. Panama.

41. CYRENA NITIDA, Desh. *C. testa orbiculato trigona, depressiuscula, inæquilaterali, epidermide prasina, nitente, lævigata vestita; latere antico obtuso, brevior, postico magis attenuato flexura decurrente, oblique sinuoso, margine superiore postico convexo, inferiore regulariter arcuato; umbonibus parvis, depressis, obliquis, approximatis; ligamento elongato, partim infosso; valvis crassis, solidis, intus candidissimis; cardine angusto, inæqualiter tridentato; dentibus obliquis latis in valva dextra, angustis in altera; dente laterali postico compresso, conico, acuto, antico brevior.*

Long. 75 mill., alt. 71, lat. 44.

Hab. —?

5. ON A NEW SPECIES OF MUSOPHAGA.

By JOHN GOULD, F.R.S., V.P.Z.S.

Mr. Gould exhibited a drawing, made by Lieut. J. H. Stack, and some feathers shed from the tail and wings of a species of *Musophaga*, a specimen of which had been living for the last ten years at St. Helena in the possession of Lady Ross, the widow of the late Sir Patrick Ross, Governor of that island. From an examination of the drawing and feathers above mentioned, Mr. Gould was of opinion that the bird is a larger and more beautifully coloured species than any of the *Musophagæ* with which we were previously acquainted. Lady Ross informed Mr. Gould that it is nearly as large as a common hen-pheasant, and has a long, full, graduated blue tail, which is also the colour of the neck, the whole of the body and the wings, except the primaries, which are arterial blood-red, margined at the tips with a purplish-brown colour, similar to that in *Musophaga violacea*; the bill and the large denuded orbits are yellow; the irides brown; and the crown of the head surmounted with a high rounded crest of hair-

like blood-red feathers. It was brought from the western coast of Africa, but the precise locality was unknown.

For this new species Mr. Gould proposed the name of *Musophaga Rossica*, in honour of its amiable owner. A perfect skin of this bird has since been sent to England, and a full description of it, accompanied by a figure, will be given in the Transactions of the Society.

January 24, 1854.

Dr. Gray, Vice-President, in the Chair.

The following papers were read :—

1. ON THE SIZE OF THE RED CORPUSCLES OF THE BLOOD OF
THE GREAT ANTEATER (*MYRMECOPHAGA JUBATA*).
BY GEORGE GULLIVER, F.R.S.

These have the usual form, but differ in their comparatively large size from those of most other Mammalia. Their average diameter is $\frac{1}{2769}$ th of an English inch, varying between the extremes of $\frac{1}{3554}$ th and $\frac{1}{2266}$ th of an inch.

All observers had come to the conclusion that there is no connection between the size of an animal and that of its blood-corpuscles, when I ascertained that in any truly natural family there is really such connection, however it may be in animals of such different orders as those to which the mouse and horse belong. The Great Anteater has larger blood-corpuscles than any yet examined in the other and smaller Edentata, though they are remarkably large in the Two-toed Sloth; and the Capybara has the largest ever seen among the Rodentia. Indeed, as this last order is characterized by a comparatively large size of blood-corpuscle, it might be supposed that in the great extinct species the corpuscles were larger than any ever measured in the Mammalia; and if any gigantic species allied to the Anteater should be found, its red corpuscles may be expected to be alike remarkable for comparative magnitude.

In the present species they are about the same size as in the Elephant, and are certainly, excepting those of this great pachydermatous animal, the largest yet observed in the Mammalia, as may be seen by reference to the copious Tables of Measurements which I have appended to the English version of Gerber's Anatomy, and to my edition of Hewson's Works, published for the Sydenham Society. With the exception just mentioned, it is still a very interesting fact, that a simple examination of less than one hundredth of a grain of its dried blood would suffice to distinguish the Anteater from any other animal in the Society's Menagerie.







J. Wolf, lith.

M & H. Harhart, Imp.

RUTICILLA HODGSONI S. Moore

33. LVIII.



Hanhart Imp.



J. Wolf, lith.

M. & N. Heathart, imp^r

RUPTICILLA RUPOGULARIS, & G. F. Moore.





J. Wolf, del.

M & N. Haubart, Imp.

RUTICILLA VIGORBI. & Moore.

IX.



Chart, Imp.



J. Wolf, del.

M. & W. Hanhart, Imp^r

PHYLLOSCOPUS NIGROGULARIS, S. P. Moore

2. A MONOGRAPH OF THE GENUS RUTICILLA, WITH DESCRIPTIONS OF SOME NEW SPECIES.

BY FREDERIC MOORE, ASSIST. MUS. EAST INDIA COMPANY.

(Aves, Pl. LVII.—LXI.)

Genus RUTICILLA (Ray), Brehm.

Syn. *Ficedula*, Boie. *Phœnicura*, Swains. *Chaimarrornis*, Hodgs.*

1. RUTICILLA PHÆNICURA, Linn.

Syn. *Motacilla phœnicurus*, Linn. S. N. i. p. 335.

Sylvia phœnicurus, Lath. Ind. Orn. ii. p. 511; Gen. Hist. vii. p. 21.

Ruticilla sylvestris, Brehm, Væg. Deutschl. p. 363. t. 21. f. 4.

Phœnicura ruticilla, Swains. Class. of B. ii. p. 240. Gould, Birds of Eur. t. 95.

Ficedula phœnicura, Boie, Isis (1822), p. 553.

Phœnicura muraria, Swains. Faun. Bor. Amer. ii. p. 489.

Ruticilla phœnicurus, Bonap. Geogr. Comp. List of B. p. 15, et C. G. Av. p. 296. G. R. Gray, Gen. of B. i. p. 180. Blyth, Journ.

A. S. Beng. xvi. p. 133; Catal. B. Mus. A. S. Beng. p. 168.

? *Phœnicura albifrons*, Brandt.

The Redstart, Bewick.

Hab. Europe; W. Asia; N. India. In Mus. East India Company.

2. RUTICILLA PHÆNICUROIDES, nobis. (Pl. LVII.)

Forehead, lores, ear-coverts, throat and breast black, extending much lower down on the latter than in *R. phœnicura*; crown, neck, back and upper wing-coverts ash, with a rufous tint, the ash palest on the crown; wings brown, with the edges of the exterior webs paler; from breast to vent, under wing-coverts, upper and lower tail-coverts and tail (except the two medial feathers which are brown) rufous. Male.

Length, 5 inches; wing, 3, the first primary being a $\frac{1}{4}$ inch longer, and the second a $\frac{1}{4}$ inch shorter than in *R. phœnicura*; tail, $2\frac{1}{2}$; bill to gape, $\frac{7}{10}$, more elongated, not so broad at base, and it is also a trifle longer; and tarse, $\frac{9}{8}$.

Hab. N. India. In Mus. East India Company.

This species is closely allied to *R. phœnicura*, but is readily distinguished from it in the absence of the white on the front of the crown.

3. RUTICILLA TITHYS, Scopoli.

Syn. *Sylvia tithys*, Scopoli, Ann. i. p. 157. Lath. Ind. Orn. ii. p. 512; Gen. Hist. vii. p. 23.

Ruticilla tithys, Brehm, Væg. Deutschl. p. 365. Gould, Birds of Eur. t. 96. G. R. Gray, Gen. of Birds, i. p. 180, et Cat. Brit. B. in B. M. p. 62. Bonap. C. G. Av. p. 296.

? *Motacilla erythacus*, Linn. S. N. i. p. 335.

* Altered to *Chaemarrhornis* by Agassiz, in his 'Nomenclator Zoologicus'.

- ? *Motacilla gibraltariensis*, Gmel. S. N. L. i. p. 987.
 ? *Motacilla atrata*, Gmel. S. N. L. i. p. 988. Lath. Ind. Orn. ii.
 p. 514 (nec Lath. Gen. Hist.).
The Black Redstart, Eyton.
Hab. Europe; W. Asia; N. Africa.

4. *RUTICILLA NIPALENSIS*, Hodgson.

- Syn. *Phœnicura nipalensis*, v. *atrata*, Hodgs. Gray's Zool. Misc. (1844) p. 83.
Sylvia atrata, Lath. Gen. Hist. vii. p. 26 (nec Gmel. et Lath. Ind. Orn.).
Phœnicura atrata, Jard. et Selby, Ill. Ind. Orn. t. 86. f. 3. Sykes, P. Z. S. (1832) p. 92. Jerd. Madras Journ. x. p. 267. Blyth, Journ. A. S. Beng. xi. p. 190.
Ruticilla atrata, G. R. Gray, Gen. of Birds, i. p. 180. Hodgs. Cat. B. of Nep. p. 68.
Ruticilla indica, Blyth, Catal. B. Mus. A. S. Beng. p. 168 (1850). Bonap. C. G. Av. p. 296.
Black Indian Redstart, Jard. et Selby.
Thirt-hira (i. e. Shaker), Hind., Jerdon.
Thirthir Kumpa, Plains, Royle.
Phirirā or *Lālgārdi*, Beng., Dr. F. (Buch.) Hamilton, MS. ii. p. 94.
Hab. India generally. In Mus. East India Company.

"This species is very common in most parts of India during the cold weather, but more so in the table-land, I think, than in the Carnatic. It is solitary, frequenting wooded places, gardens, hedges, old walls and out-buildings, being often seen about the roofs of houses. It feeds on the ground, on wasps, ants, and various other insects. Has a most peculiar quivering motion of its tail, especially after feeding."—Jerdon.

5. *RUTICILLA HODGSONI*, nobis. (Pl. LVIII.)

- Syn. *Phœnicura ruticilla*, Hodgs. Gray's Zool. Misc. (1844) p. 82 (nec Swains.).
Ruticilla Reevesii, Hodgs. Cat. Birds of Nepal, p. 67 (nec J. E. Gray).
Phœnicura Reevesii, Blyth, Journ. A. S. Beng. xii. p. 963 (nec J. E. Gray).
Ruticilla erythrogastra, Blyth, Cat. B. Mus. A. S. Beng. p. 168 (nec Gûldenst.).

Tharcapni, Nepal, Hodgson.

Hab. Nepal. In Mus. East India Company.

Male: forehead, lores, ear-coverts, throat and breast black; fore part of crown clear white (much narrower than in *R. phœnicura*); hind part of crown, neck, back and upper wing-coverts fine ash, lightest on the crown; wings above dusky brown, the exterior margin of the basal half of the secondaries white, forming a patch; from the breast to vent, under wing-coverts, rump, upper and lower tail-coverts and tail (except the interior and exterior margins only of the two middle feathers which are dusky brown) rufous. The female may be readily

distinguished by a general puffy appearance, and by the relative length of wing, &c.

Length, 6 inches; wing, $3\frac{3}{8}$; tail, $2\frac{6}{8}$; bill to gape, $\frac{6}{8}$; and tarse, $\frac{7}{8}$.

6. *RUTICILLA RUFOGULARIS*, nobis. (Pl. LIX.)

Male: crown and back of neck mixed grey and ash; lores, ear-coverts and sides of neck black; wings and medial tail-feathers dark brown; apical margin of the exterior web of the outer tail-feather dusky; smaller wing-coverts (except the feathers immediately on the shoulder), scapulars, basal portion of the speculums, and apical margins of the greater wing-coverts white; exterior margin of the secondaries pale rufescent; throat and breast, back and upper tail-coverts and tail rufous; abdomen, under wing- and tail-coverts pale rufescent. Female: cinereous brown above, rufescent beneath; wings dark brown, margined with pale rufescent; lower part of back, upper tail-coverts and tail rufous, the two medial feathers dark brown, exterior margin of the outer dusky.

Hab. N. India. In Mus. East India Company.

7. *RUTICILLA ERYTHROGASTRA*, Gldenstadt.

Syn. *Motacilla erythrogastra*, Gldenst. Nov. Comm. Petrop. xix. p. 469. t. 16, 17. Gmel. S. N. L. i. p. 975.

Sylvia erythrogastra, Lath. Ind. Orn. i. p. 503; Gen. Hist. vii. p. 27.

Motacilla ceraunia, Pallas, Zoogr. i. p. 478.

Ruticilla grandis, Gould, P. Z. S. (1849) p. 112.

Ruticilla erythrogastra, Bonap. C. G. Av. p. 296. Gould, Birds of Asia, t. 50.

The Chestnut-bellied Warbler, Lath.

Hab. Cashmere; Kumaon; Nepal (No. 969. *Hodgs. Catal.*). In Mus. East India Company.

"This species frequents the gravelly hollows of the Caucasian torrents during the whole of the summer, and migrates southward, in search of food, on the approach of winter; it runs along the banks of rivers; is restless, but not fearful; often moving its tail while sitting on the low shrubs; it makes its nest among the branches of the sea buckthorn, of the berries of which it is very fond."—*Gldenstadt*.

8. *RUTICILLA VIGORSI*, nobis. (Pl. LX.)

Female: above, head, neck and back cinereous; wings dusky, with paler margins; beneath rufescent; upper tail-coverts and tail rufous, the two medial feathers dusky, as is also the exterior web of the outer and tip of each feather, but paler; bill and legs black.

Length, 7 inches; wing, $4\frac{1}{4}$; first quill $1\frac{1}{2}$ inch shorter than the second, the third $\frac{6}{10}$ longer than the second, fourth and fifth equal and longest, the third and sixth equal and but a trifle shorter than the fourth and fifth, the seventh a $\frac{1}{4}$ inch longer than the second, the eighth $\frac{1}{8}$ shorter than the second; tail, 3; bill to gape, $\frac{6}{8}$; and tarse, 1.

Hab. N. India. In Mus. East India Company.

This may eventually prove to be the female of a species allied to *R. erythrogastra*, but having no white wing-patch.

9. *RUTICILLA AUROREA*, Pallas.

Syn. *Motacilla aurorea*, Pall. Zoogr. i. p. 477. Kittl. Kupf. Væg. t. 26. f. 1. Gmel. S. N. L. i. p. 976. Lath. Hist. vii. p. 92.

Phœnicura Reevesii, J. E. Gray, Zool. Misc. (1832) p. 1. McClelland, P. Z. S. 1839, p. 161.

Ruticilla aurorea, G. R. Gray, Gen. of Birds, i. p. 180 (excl. syn.). Bonap. C. G. Av. p. 296.

Lusciola aurorea, Schlegel, Faun. Japon. t. 21 d.

Daurian Warbler, Lath.

Reeves's Redstart, Gray.

Hab. Assam; China; Japan. In Mus. East India Company.

Male: forehead, lores, ear-coverts, throat, fore part of breast, back, upper wing-coverts, apical and basal portion of the secondaries and tertiaries, and the two medial tail-feathers black; exterior margin of the outer tail-feather and apical margin of the rest dusky black; medial portion of both webs of the secondaries and tertiaries white; crown of head and back of neck slaty ash, rather whitish above the ear-coverts; breast, abdomen, under wing-coverts, upper and lower tail-coverts and tail (except as above) rufous. Female: above brown, the wing-patch rufescent white; beneath rufescent; upper and lower tail-coverts and tail (except the medial feathers of the latter which are dusky brown) rufous; bill and legs black.

Length, 5 inches; wing, 3; tail, $2\frac{1}{2}$; bill to gape, $\frac{5}{8}$; and tarse, $\frac{3}{4}$.

10. *RUTICILLA LEUCOPTERA*, Blyth.

Syn. *Phœnicura leucoptera*, Blyth, Journ. A. S. Beng. xii. p. 962.

Ruticilla leucoptera, Blyth, Journ. A. S. Beng. xvi. p. 134; Catal. B. Mus. A. S. Beng. p. 168. G. R. Gray, Gen. of Birds, i. p. 180. Bonap. C. G. Av. p. 296.

Hab. Malacca; Java. In Mus. As. Soc. Bengal.

"Size of *R. phœnicura*, and much resembling in plumage *R. nipalensis*, but smaller and the wings much shorter than in the latter species; it is also generally similar to *R. phœnicura*, but has no white on the forehead, which, with the crown, neck, and fore part of the back, are ash-grey; the middle of the back is black, as are also the lores, ear-coverts, throat and breast; and the rest of the under parts, with the rump and tail, except the medial feathers of the latter, are bright ferruginous, the exterior web of the outermost tail-feather being marked with dusky; wings dusky, having a large white patch occupying the base of the secondaries and tertiaries, extending over both webs of each feather; bill and feet black. According to season, the dorsal plumage is margined with brown edgings, the under parts more slightly with greyish, and the wing-coverts with brown. Female plain brown above, paler beneath, with rufous tail, and the same great white wing-patch as in the male.

"Length about 6 inches; of wing, $2\frac{3}{4}$; tail, $2\frac{3}{8}$; bill to gape, $\frac{5}{8}$; tarse, $\frac{3}{4}$."

11. *RUTICILLA CÆRULEOCEPHALA*, Vigors.

Syn. *Phœnicura cæruleocephala*, Vigors, P. Z. S. 1830, p. 35. Gould, Cent. of Birds, t. 25. f. 2. Blyth, Journ. A. S. Beng. xi. p. 190.

Ruticilla cæruleocephala, G. R. Gray, Gen. of Birds, i. p. 180. Hodgs. Catal. B. of Nep. p. 68. Blyth, Journ. A. S. Beng. xvi. p. 134; Catal. B. Mus. A. S. Beng. p. 168. Bonap. C. G. Av. p. 296.

Hab. N. India. In Mus. East India Company.

12. *RUTICILLA SCHISTICEPS*, Hodgson.

Syn. *Phœnicura schisticeps*, Hodgs. Gray's Zool. Misc. (1844) p. 83.

Ruticilla schisticeps, Hodgs. Catal. B. of Nep. p. 69, et App. p. 153.

Hab. Nepal (No. 813. *Hodgs. Catal.*).

"Side of the head and neck, back, wings and tail black; top of the head pale slaty blue; throat and large patch on each wing white; lower part of breast and abdomen rufous chestnut.

"Length, 6 inches; wing, 3 inches 4 lines; bill from gape, 7 lines; tarse, $10\frac{1}{2}$ lines."

The only known example of this species is in the British Museum.

13. *RUTICILLA NIGROGULARIS*, nobis. (Pl. LXI.)

Crown of the head slaty blue, lightest on the forehead; lores, ear-coverts, throat, back of neck, back, upper wing-coverts, two middle tail-feathers entirely, and the rest (except the basal portion) black; wings blackish brown, the scapulars, outer edges of the secondaries and under wing-coverts white; breast, flanks, belly, rump, upper and lower tail-coverts and base of tail (except the two middle feathers) bright chestnut; the vent and under tail-coverts have a few white feathers intermixed; bill and legs black.

Length, 6 inches; wing, $3\frac{3}{8}$; tail, $2\frac{6}{8}$; bill to gape, $\frac{5\frac{1}{2}}{8}$; tarse, $\frac{5}{8}$.

Hab. Nepal (No. 813*. *Hodgs. Catal.*). In Mus. East India Company.

This species is closely allied to *R. schisticeps*, but differs in having the throat black instead of white.

14. *RUTICILLA FRONTALIS*, Vigors.

Syn. *Phœnicura frontalis*, Vigors, P. Z. S. 1831, p. 172. Gould, Cent. of Birds, t. 26. f. 1. Blyth, Journ. A. S. Beng. xi. p. 190.

Ruticilla frontalis, G. R. Gray, Gen. of Birds, i. p. 180. Hodgs. Cat. B. of Nep. p. 68. Blyth, Journ. A. S. Beng. xvi. p. 134; Catal. B. Mus. A. S. Beng. p. 168. Bonap. C. G. Av. p. 296.

Ruticilla melanura, Less. Rev. Zool. (1840) p. 265.

Phœnicura tricolor, Hodgs. Gray's Zool. Misc. (1844) p. 83.

Hab. N. India. In Mus. East India Company.

15. *RUTICILLA FULIGINOSA*, Vigors.

Syn. *Phœnicura fuliginosa*, Vigors, P. Z. S. 1830, p. 35. Blyth, Journ. A. S. Beng. xi. p. 190.

Ruticilla fuliginosa, G. R. Gray, Gen. of Birds, i. p. 180. Hodgs. Cat. B. of Nep. p. 68. Blyth, Journ. A. S. Beng. xvi. p. 134; Cat. B. Mus. A. S. Beng. p. 169. Bonap. C. G. Av. p. 296.

- Phænicura plumbea*, Gould, P. Z. S. 1835, p. 185.
Ruticilla simplex, Less. Rev. Zool. (1840) p. 265.
Phænicura rubricauda, Hodgs. Gray's Zool. Misc. (1844) p. 82 (the male).
Phænicura lineoventris, Hodgs. MS. (the female).
Hab. N. India. In Mus. East India Company.
 "Found along rivers, near or among mountains, haunts rocks just appearing above the torrent. Feeds on coleopterous insects. Continually spreading its tail out like a fan, and in a vibrating manner."
 —Griffith.

16. *RUTICILLA LEUCOCEPHALA*, Vigors.
 Syn. *Phænicura leucocephala*, Vigors, P. Z. S. 1830, p. 35. Gould, Cent. of Birds, t. 26. f. 1.
Sylvia erythrogastra, var. A, Lath. Hist. vii. p. 28.
Ruticilla leucocephala, Less. Rev. Zool. (1840) p. 265. G. R. Gray, Gen. of Birds, i. p. 180. Hodgs. Cat. B. of Nep. p. 68. Blyth, Journ. A. S. Beng. xvi. p. 134; Catal. B. Mus. A. S. Beng. p. 169. Bonap. C. G. Av. p. 296.
Chaimarrornis leucocephalus, Hodgs. Gray's Zool. Misc. (1844) p. 82.
The White-capped Redstart.
Gir-Chaondeea, Hind., Hardwicke.
Kalee pholia, Mohun Ghats, Royle.
Hab. N. India. In Mus. East India Company.
 "This species is extremely common in the valley of the Dhoon, and also in the hills, along the banks of streams and rivers, flitting from rock to rock and stone to stone, and eternally shaking and spreading its tail."—Hutton.
 17. *RUTICILLA ERYTHRONOTA*, Eversman.
 Syn. *Sylvia erythronota*, Eversm. Addend. Pallas, Zoogr. Fasc. ii.
Ruticilla erythronota, G. R. Gray, Gen. of Birds, i. p. 180. Bonap. C. G. Av. p. 297.
Hab. Caucasus (non vidi).

3. CONTRIBUTIONS TOWARDS THE NATURAL HISTORY OF THE
AURICULIDÆ, A FAMILY OF PULMONIFEROUS MOLLUSCA;
 WITH DESCRIPTIONS OF MANY NEW SPECIES FROM THE
 CUMINGIAN COLLECTION. BY H. AND A. ADAMS.

Dr. Pfeiffer, in the 'Zeitschrift für Malacozoologie,' has very naturally divided the *Auriculidæ* into two subfamilies, viz. *Auriculinae*, including those genera which live on the land, and of which the peritreme of the shells is thickened or expanded; and the *Melampinae*, or those which are amphibious or living in brackish water, and in which the peritreme of the shell is straight and acute. To the first subfamily belong *Ellobium* (or *Auricula*), *Pythia* (or *Scarabius*), *Cassidula*, *Alexia*, *Carychium*, and *Plecotrema*, a new genus

proposed by the authors of this communication ; to the other sub-family the following genera will appertain, viz. *Melampus*, *Tralia*, *Ophicardelus*, *Laimodonta*, *Marinula*, *Leuconia*, *Pedipes*, and *Otina*. The last-mentioned genus, according to the observations of Dr. Gray*, only seems to differ from *Pedipes* in the shell being ear-shaped and not supplied with tooth-like plaits. In the present as in former communications, the authors have endeavoured to arrange the synonymy and indicate the generic position of the numerous species of *Auriculidæ*.

Genus CASSIDULA, Férussac.

Shell oval, subconic, solid ; spire short, obtuse ; aperture narrow, longitudinal ; inner lip plicate anteriorly, thickened and reflected ; outer lip reflected, with an internal marginal callus, sinuated posteriorly.

Sidula, Gray ; *Detracia*, Gray ; *Rhodostoma*, Swainson.

1. CASSIDULA COFFEA, Chemnitz.

Voluta coffea, Chemn. (not Linn.) ix. p. 45. t. 121. f. 1043, 1044.
—*Bulimus auris-felis*, Brug. Dict. no. 77 ; Encycl. Méth. Vers, p. 343.—*Auricula felis*, Lamk. Hist. viii. p. 326.—*Cassidula Chemnitzii*, Beck, Ind. Moll.

2. CASSIDULA NUCLEUS, Gmelin.

Helix nucleus, Gmelin, Syst. Nat., p. 3651. no. 255.—*Auricula nucleus*, Martyn, Univ. Conch. t. 67 ; Lamk. Hist. viii. p. 335. no. 21.—*Conovulus nucleus*, Féruss. Prodr. p. 195. no. 26.

3. CASSIDULA KRAUSSII, Küster.

Auricula Kraussii, Küst. Chemn. Conch. Cab. (Auriculacea) p. 24. t. 3. f. 6–8.

4. CASSIDULA MUSTELINA, Deshayes.

Auricula mustelina, Desh. Encycl. Méth. Vers, ii. p. 92. no. 14.

5. CASSIDULA RUGATA, Menke.

Auricula rugata, Menke, Moll. Nov. Holland. p. 7. no. 15.

6. CASSIDULA CUMINGIANA, Recluz.

Conovulus Cumingianus, Recluz, Ann. and Mag. Nat. Hist. vol. xvii. p. 295 (1846).

7. CASSIDULA ANGULIFERA, Petit.

Auricula angulifera, Petit, Rev. Zool. vol. iv. p. 101 ; Menke, Moll. Nov. Holland. p. 8. no. 16.

8. CASSIDULA DOLIOLUM, Petit.

Auricula doliolum, Petit, Proc. Zool. Soc. December 1842 ; Ann. and Mag. Nat. Hist. vol. xii. p. 347.

9. CASSIDULA SULCULOSA, Mousson.

Auricula sulculosa, Mouss. Land- und Süßwass. Moll. v. Java, p. 45. pl. 5. f. 9.

* Ann. and Mag. Nat. Hist. January 1854, p. 74.

10. CASSIDULA SOWERBYANA, Pfeiffer.

Auricula (Cassidula) Sowerbyana, Pfr. Zeitschr. f. Malacozool. 1853, p. 125.

11. CASSIDULA FABA, Menke.

Auricula (Cassidula) faba, Menke, Zeitschr. f. Malacozool. 1853, p. 124.

12. CASSIDULA ZONATA, H. et A. Adams. *C. testa parva, ovato-conoidea, fusca, zonis rufis inæqualibus cincta, transversim punctato-striata, suturis marginatis; apertura angusta; columella biplicata, postice tuberculo unico, plicam medianam magnam circa regionem umbilicalem carinam formante; labro extus incrassato, intus marginato, in medio unidentato.*

Hab. Sydney, under stones, low water. Mus. Cuming.

13. CASSIDULA DECUSSATA, H. et A. Adams. *C. testa ovata, crassa, fusca, spira obtusa, lineis impressis, transversis et longitudinalibus valde decussata; lira elevata ad suturas; apertura oblonga, angusta; columella triplicata, plica postica obsoleta, tuberculiformi; labro marginato, postice resecto, extus albido.*

Hab. Moreton Bay. Mus. Cuming.

Subgenus SIONA, H. and A. Adams.

Shell ovato-cylindrical; spire obtuse; whorls transversely striated; aperture linear; inner lip with two anterior plaits; outer lip thickened internally, posteriorly sinuated.

14. CASSIDULA (SIONA) AVENA, Petit.

Auricula avena, Petit, Revue Zool. vol. v. p. 106 (1842).

15. CASSIDULA (SIONA) FRUMENTUM, Petit.

Auricula frumentum, Petit, Revue Zool. vol. v. p. 105 (1842).

16. CASSIDULA (SIONA) TRITICEA, Philippi.

Auricula triticea, Philippi (in litt.), Küster, p. 49 (not identified).

Genus ALEXIA, Leach.

Shell oblong-ovate; spire acuminate; aperture elongate; inner lip 3-5-plaited; outer lip with the margin reflexed, thickened, or dentate internally.

Phytia, Gray; *Pythia*, Beck (not Bolten); *Ovatella*, Bivona; *Jaminea*, Brown (part.).

1. ALEXIA DENTICULATA, Montagu.

Voluta denticulata, Mont. Test. Brit. p. 234. t. 20. f. 5.—*Voluta ringens*, Turt. Conch. Dict.—*Auricula myosotis*, Jeffr. (not Drap.).—*Acteon denticulata*, Fleming, Brit. Anim.

2. ALEXIA PERSONATA, Michaud.

Carychium personatum, Mich. Compl. à Drap. p. 73. no. 2. pl. 15.

f. 42, 43.—*Auricula personata*, Lamk. Hist. ed. Desh. tom. viii. p. 334. no. 18; Phil. Enum. Moll. Sicil. ii. p. 118. no. 3.—*Auricula tenella*, Menke, Syn.

3. ALEXIA REFLEXILABRIS, D'Orbigny.

Auricula reflexilabris, D'Orbig. Voy. dans l'Amér. Mérid. tab. 6. p. 140.

4. ALEXIA MYOSOTIS, Draparnaud.

Auricula myosotis, Draparn. Moll. pl. 3. f. 16, 17; Blainv. Malac., p. 453, pl. 37 bis, f. 6.—*Voluta denticulata*, Dillw. Cat. t. i. p. 506. no. 18.—*Auricula pellucens*, Menke, Syn.

5. ALEXIA ACUTA, D'Orbigny.

Auricula acuta, D'Orb. Syn. Mag. de Zool. 1835, p. 23. no. 2.

6. ALEXIA KUTSCHIGIANA, Küster.

Auricula Kutschigiana, Küst. Chemn. Conch. Cab. (Auriculacea) p. 55. t. 8. f. 11–14.

7. ALEXIA BIASOLETTIANA, Küster.

Auricula Biasolettiana, Küst. Chemn. Conch. Cab. (Auriculacea) p. 56. t. 8. f. 18–20.

8. ALEXIA BERMUDENSIS, H. et A. Adams. *A. testa ovato-conica, spira producta, acuta, fusca, nitida, longitudinaliter substriata; anfractibus sex, planiusculis, suturis marginatis; apertura ovali, postice acuta; columella biplicata, plica postica valida; labro subreflexo, albido-marginato.*

Hub. Bermuda. Mus. Cuming.

Genus CARYCHIUM, Müller.

Shell subcylindrical; spire elevated; whorls few, rounded; aperture small; inner lip straight, with a single fold; outer lip thickened and rather reflexed.

Auricella (part.), Jurine.

1. CARYCHIUM MINIMUM, O. F. Müller.

Carychium minimum, O. F. Müll. Hist. Verm. ii. p. 125. no. 321.—*Helix carychium*, Gmel. p. 3665.—*Turbo carychium*, Dillw. Cat. ii. p. 880.—*Auricula minima*, Drap. Moll. de France, p. 57. t. 3. f. 18, 19.—*Bulinus minimus*, Brug. Encycl. Méth. Vers. i. no. 21.—*Auricella carychium*, Hartm. in Sturm's Fauna, vi. Heft 6. tab. 1.—*Odostomia carychium*, Flem. Edin. Encycl.—*Auricula minima*, Lamk.—*Carychium pygmæum*, Mich.—*Auricula pygmæa*, Desh.—*Carychium nanum*, Küst. (var.) p. 5.

2. CARYCHIUM EXIGUUM, Say.

Pupa exigua, Say, Journ. Philad. ii. p. 375.—*Carychium exiguum*, Küst. Chemn. (Auriculacea) t. 1. f. 13, 14.

No. CCLXII.—PROCEEDINGS OF THE ZOOLOGICAL SOCIETY.

3. CARYCHIUM SPELÆUM, Rossmässler.

Carychium spelæum, Rossm. Iconograph. ixx. p. 36. no. 2. pl. 49. f. 661.

4. CARYCHIUM SPECTABILE, Rossmässler.

Carychium spectabile, Rossm. ixx. p. 36. no. 1. pl. 49. f. 659.

5. CARYCHIUM INDICUM, Benson.

Carychium Indicum, Bens. Ann. and Mag. Nat. Hist. ; 2nd ser. iv. p. 194.

Genus OPHICARDELUS, Beck.

Shell ovate-oblong, umbilicated, smooth ; spire elevated, subconic ; aperture oval ; inner lip anteriorly dilated and reflexed, with two plaits at the fore part, the posterior spiral, forming an elevated ridge round the umbilical region ; outer lip thin, simple.

1. OPHICARDELUS AUSTRALIS, Bruguière.

Bulimus australis, Brug. Encycl. Méth. p. 347.—*Auricula australis*, Desh. Lamk. Hist. Nat. deux. édit. tom. viii. p. 333. no. 15 ; Quoy & Gaim. Voy. de l'Astrol. ii. p. 169. pl. 13. f. 34–38.—*Auricula ovata*, Gray, Spicil. Zool. p. 5. pl. 6. f. 21.

2. OPHICARDELUS QUOYI, H. et A. ADAMS. *O. testa ovato-conica, spira elata, conoidea, brunnea, fasciis angustis transversis cincta, lavi, nitida, longitudinaliter striata ; anfractu ultimo carina spirali circa regionem umbilicalem circumcincto ; apertura oblongo-ovata ; columella biplicata ; labro intus vix marginato et unilamellato.*

Hab. Moreton Bay. Mus. Cuming.

Subgenus LAIMODONTA, Nuttall.

Shell oblong-ovate, imperforate, thin, transversely striated ; spire elevated, conic ; aperture oval ; inner lip with three plaits, the anterior small ; outer lip with the margin acute, posteriorly sinuated, internally with an elevated transverse ridge.

Lirator, Beck. ?

3. OPHICARDELUS (LAIMODONTA) TÆNIATA, Nuttall.

Laimodonta tæniata, Nutt. Sow. Manual.

4. OPHICARDELUS (LAIMODONTA) SANDWICHENSIS, Eydoux et Souleyet.

Auricula Sandwichensis, Eyd. et Soul. Voy. Bonite, pl. 29. f. 29, 30.

5. OPHICARDELUS (LAIMODONTA) CONCINNA, C. B. Adams.

Auricula concinna, C. B. Adams, Shells of Panama, p. 208. no. 310.

6. OPHICARDELUS (LAIMODONTA) SULCATA, H. et A. Adams.

O. testa ovata, spira conica, elongata, apice erosa, brunnea, fasciis tribus pallidis transversis ornata, transversim sulcata, liris intermediis subgranulosis instructa ; apertura angusta ;

columella biplicata, plica postica carinam spiralem circa regionem umbilicalem formante; labro acuto, simplice, intus lævi.

Hab. —? Mus. Cuming.

7. *OPHICARDELUS (LAIMODONTA) LAYARDI*, H. et A. Adams.
O. testa ovato-conica, rufo-fusca, fascia alba, lata, transversa ornata; spira elata, apice acuta, anfractibus planis, transversim sulcatis; apertura ovata; columella triplicata, plicis posterioribus validis; labro intus unilamellato, margine acuto.

Hab. Ceylon (Mr. Layard). Mus. Cuming.

Genus MARINULA, King.

Foot simple inferiorly, without a transverse groove.

Shell ovate-oblong, imperforate, solid, smooth; apex short, acute; aperture obovate; inner lip broad, excavated, with three plaits, the posterior the largest; outer lip posteriorly sinuated, internally simple, the margin acute.

1. *MARINULA PEPITA*, King.

Marinula pepita, King, Zool. Journ. vol. v. p. 344.—*Auricula pepita*, Reeve, Conch. Syst. t. 187. f. 1.—*Pythia pepita*, Beck, Ind. Moll.—*Conovulus triplicatus*, Anton, Verzeich. p. 48. no. 1779.

2. *MARINULA PATULA*, Lowe.

Melampus patulus, Lowe, Mon. Melamp. Zool. Journ. vol. v. p. 289.

3. *MARINULA MARINELLA*, King.

Auricula marinella, King, Zool. Journ. vol. v.—*Auricula nigra*, Phil. in litt. Küst. Conch. Cab. (Auriculacea) t. 3. f. 4, 5. p. 23.

4. *MARINULA CALLAOENSIS*, Petit.

Auricula Callaoensis, Petit, Proc. Zool. Soc.

5. *MARINULA RECLUZIANA*, Petit.

Auricula Recluziana, Petit, Proc. Zool. Soc. 1842, p. 201.

6. *MARINULA CYMBÆFORMIS*, Recluz.

Auricula cymbæformis, Recluz, Rev. Zool.

7. *MARINULA PUNCTATA*, Bivona.

Oratella punctata, Bivon. Nuov. Gen. e Spec. p. 4. t. 2. f. 12.—*Auricula villosa*, Fér.—*Auricula Firminii*, Payraud, Cat. Moll. Corse, pl. 5. f. 10.—*Melampus Firminii*, Lowe.

8. *MARINULA ÆQUALIS*, Lowe.

Melampus æqualis, Lowe, Zool. Journ. (Mon. Melamp.) vol. v. p. 288. t. 12. f. 1–4.—*Melampus gracilis*, Lowe (var.).

9. *MARINULA XANTHOSTOMA*, H. and A. Adams. *M. testa ovato-oblonga, solida, læviscula, nitida, fulva; spira acuta, anfractibus 5, convexiusculis; apertura oblongo-ovata, lutea;*

columella triplicata, plica postica pervalida; labro acuto, in medio vix incrassato, postice sinuato.

Hab. Moreton Bay. Mus. Cuming.

Genus PEDIPES, Adanson.

Foot furnished inferiorly with a transverse groove.

Shell subglobose, imperforate, transversely striated; spire short, obtuse; aperture narrow; inner lip flattened and excavated, with three plaits, the posterior the largest; outer lip posteriorly sinuated, with two teeth internally; margin acute.

1. PEDIPES AFRA, Gmelin.

Helix Afra, Gmel. Syst. Nat. p. 3651. no. 194.—*Pedipes*, Adanson, Voy. au Senegal, p. 11. pl. 1. f. 4.—*Pedipes Adansonii*, Blainv. Dict. t. xl. p. 288.

2. PEDIPES ANGULATA, C. B. Adams.

Pedipes angulata, C. B. Adams, Shells of Panama, p. 207. no. 308.

3. PEDIPES OVALIS, C. B. Adams.

4. PEDIPES QUADRIDENS, Pfeiffer.

5. PEDIPES GLOBULUS, Féruss.

Genus LEUCONIA, Gray.

Shell ovate-oblong, imperforate, smooth; spire conical; aperture elongate-oval; inner lip with two plaits anteriorly; outer lip smooth internally, the margin simple.

1. LEUCONIA ALBA, Montagu.

Voluta alba, Mont. Test. Brit. 235; Turt. Dict.—*Auricula alba*, Gray, Ann. Phil. xv.; Jeffr. Linn. Trans. xvi. 370; Forbes, Malac. Monensis, 12.—*Valvaria alba*, Flem. Brit. Anim.; Walker, Min. Shells, f. 61.—*Voluta bidentata*, Mont. Test. Brit. Suppl. 100. t. 30. f. 2.—*Auricula bidentata*, Féruss. Tab. Moll. 103.—*Auricula erosa*, Jeffr. (var.)

2. LEUCONIA SAYI, Küster.

Auricula Sayi, Küst. Chemn. Neuer Conch. Cab. (Auriculacea) p. 42. t. 6. f. 14, 15.

3. LEUCONIA MICROSTOMA, Küster.

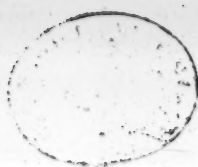
Auricula microstoma, Küst. Chemn. Neuer Conch. Cab. (Auriculacea) p. 52. t. 1. f. 18, 19.

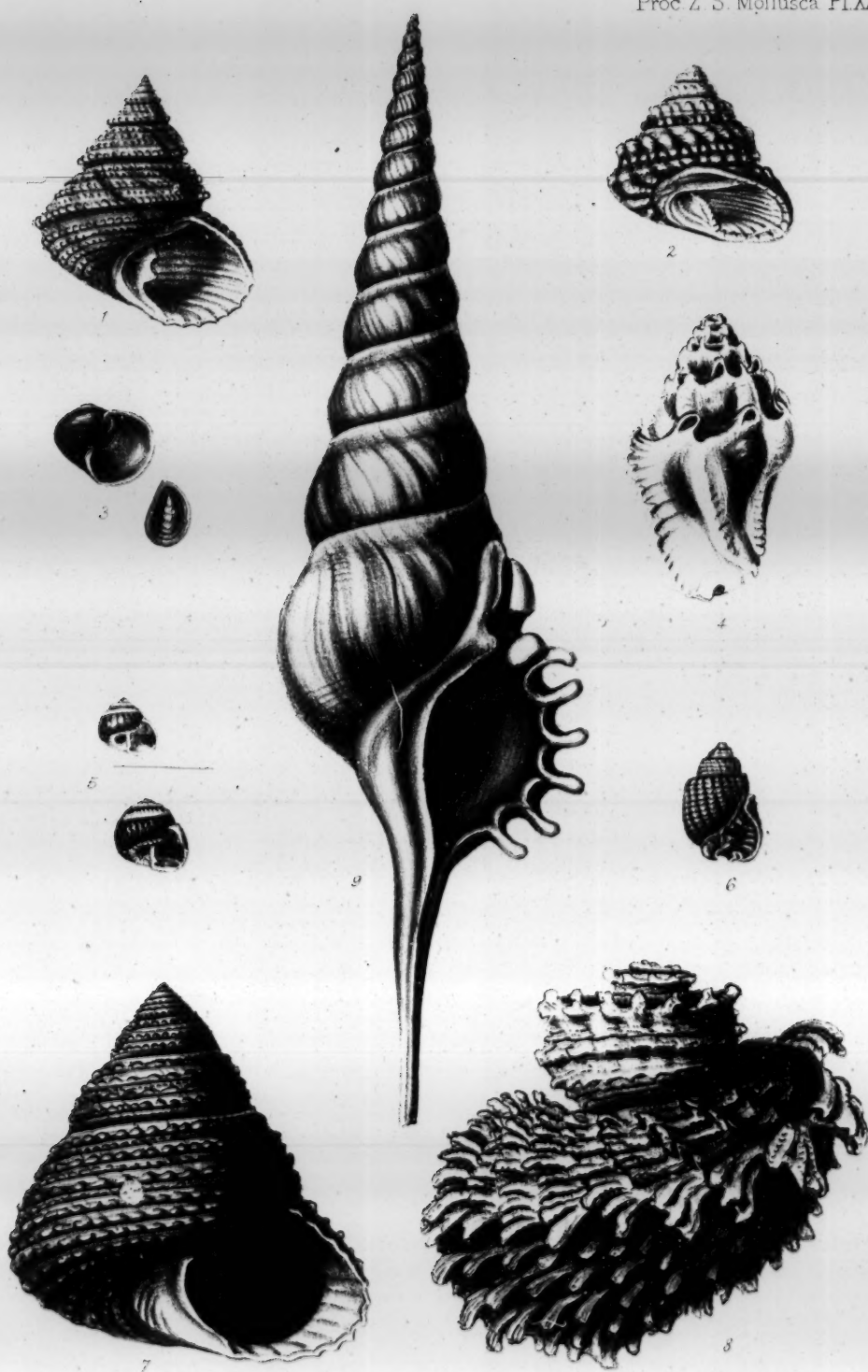
4. LEUCONIA MICHELI, Mittré.

Auricula Micheli, Mittré, Rev. Zool. vol. iv. p. 66.

5. LEUCONIA BIVONÆ, Philippi.

Auricula Bivonæ, Phil. in litt. Küster, Chemn. Neuer Conch. Cab. (Auriculacea) p. 20. t. 2. f. 14, 15.





- | | | |
|-------------------------|--------------------|--------------------------|
| 1 Turritella monilifera | 4 Typhus crassa | 7 Zorophorus spectabilis |
| 2 Chionulus nodulosus | 5 Eulima convexata | 8 Polydora M. cumi |
| 3 Larina (Ranger) | 6 Decimulus rugosa | 9 Rosalia melanochelus |

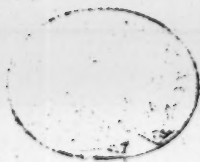




Fig. 1. 2. 3. 4. 5. 6. 7. 8. 9.

Fig. 1. 2. 3. 4. 5. 6. 7. 8. 9.

1. *Nepora Rhodostoma*.
2. *Stomatia decorata*.
3. *Stomatia Balkici*.

4. *Stomatia recarva*.
5. *Mura Mörchi*.
6. *Stomatia Grayi*.

7. *Pisana Hermann*.
8. *Amphiperas Pineda*.
9. *Valva rosea*.

6. LEUCONIA AURICELLA, Férussac.

Auricula auricella, Féruss. Prodr. p. 103: no. 5; Küster, Auriculacea, p. 47: t. 7. f. 12, 13.

Genus PLECOTREMA, H. et A. Adams.

Shell ovato-conic, solid, umbilicated; spire elevated, acute; aperture contracted, oblong; inner lip with three plaits, the middle one bifid; outer lip with a marginal varix, internally bidentate. (Proc. Z. S. 1853. p. 120.)

1. PLECOTREMA BELLA, H. et A. Adams. *P. testa ovato-conica, late umbilicata; spira acuminata, anfractibus gradatis, ad suturas angulatis, liris transversis, granulatis, æqualibus concinne insculptis; apertura parva, peristomate libero; labio triplicato, plica mediana duplicata; labro intus bidentato, extus incrassato, limbo.*

Hab. Philippines. Mus. Cuming.

4. FURTHER CONTRIBUTIONS TOWARDS THE NATURAL HISTORY OF THE TROCHIDÆ: WITH THE DESCRIPTION OF A NEW GENUS AND OF SEVERAL NEW SPECIES, FROM THE CUMINGIAN COLLECTION. BY ARTHUR ADAMS, F.L.S. ETC.

(Mollusca, Pl. XXVII.)

Genus TURCICA, A. Adams. (Nov. gen.)

Shell conoidal, thin, subdiaphanous, imperforate; whorls with transverse series of granules, the last rounded at the periphery; columella solid, spirally twisted at the upper part, ending below or anteriorly in an obtuse prominent point; outer lip thin, simple, acute.

This genus is founded on a beautiful trochoid shell from Australia, having somewhat the aspect and singular texture of a *Ziziphinus*; the great peculiarity, however, of the spirally-contorted columella distinguishes it from all the species of that genus.

1. TURCICA MONILIFERA, A. Adams. (Pl. XXVII. fig. 1.)

T. testa conoidea, subdiaphana, tenui, imperforata, fulva, aureo-nitente; anfractibus convexiusculis, cingulis moniliformibus, transversis, interstitiis oblique striatis, insculptis; suturis canaliculatis; anfractu ultimo cingula granulorum, in serie duplici dispositorum, ornato; basi convexa, cingulis granulosis granulis nonnullis fuscis instructa; apertura suborbiculari; columella superne spirali, antice in dentem desinente; labro margine acuto, intus lirato.

Hab. Moreton Bay, Australia. Mus. Cuming.

2. ZIZIPHINUS SPECTABILIS, A. Adams. (Pl. XXVII. fig. 7.)

Z. testa conoidea, solida, imperforata, nitida, carneo-fulvescente; anfractibus planulatis, cingulis transversis, moniliformibus, granulis albidis, interstitiis subpurpureis, alternantibus ornatis;

anfractu ultimo rotundato, infima facie concentrice et valde lirato, regione umbilicali alba; columella solida, arcuata; apertura subquadrata; labro margine acuto, intus sulcato.

Hab. New Zealand. Mus. Cuming.

3. *ZIZIPHINUS SPECIOSUS*, A. Adams. *Z. testa pyramidal-conica, imperforata, carnea, rufo variegata et punctata; anfractibus planulato-concavis, liris transversis, subgranulatis, majoribus cum minoribus alternantibus, granulis nonnullis rufo-fuscis, insculptis; anfractu ultimo obtuse angulato, basi concentrice exarato, regione umbilicali impressa, callo rufo cincta; apertura subquadrata; columella solida, subarcuata, antice vix truncata; labro intus lirato, margine in medio subangulato.*

Hab. Moreton Bay (Mr. Strange). Mus. Cuming.

4. *ZIZIPHINUS COMPTUS*, A. Adams. *Z. testa elevato-conica, imperforata, alba, rubro sparsim punctata, apice atro-purpurea; anfractibus planiusculis, suturis canaliculatis, cingulis transversis, granulosis, lineis elevatis alternantibus ornatis, granulis nitidissimis; anfractu ultimo rotundato; apertura quadrato-orbiculari; columella arcuata, in medio vix tuberculata; labro acuto, simplice, intus lirato.*

Hab. New Caledonia. Mus. Cuming.

5. *ZIZIPHINUS SCITULUS*, A. Adams. *Z. testa turbinato-conica, late et profunde umbilicata, carnea, rufo variegata; anfractibus convexis, ad suturas marginatis, liris transversis, asperulatis, rubro articulatis ornatis; anfractu ultimo rotundato, ad peripheriam vix carinato, basi convexo, radiatim striato et concentrice lirato; apertura orbiculari, columella arcuata, in medio excavata.*

Hab. New Zealand (Mr. Strange). Mus. Cuming.

6. *ZIZIPHINUS EUGLYPTUS*, A. Adams. *Z. testa conoidea, solida, imperforata, carnea, rubro pallide variegata, apice atro-purpurea; anfractibus convexiusculis, cingulis transversis, moniliformibus, majoribus cum minoribus alternantibus ornatis; anfractu ultimo rotundato, basi convexiusculo, cingulis granulosis, concentricis insculpta, regione umbilicali alba; apertura subquadrangulari; columella solida, convexa, rectiuscula, antice subtruncata.*

Hab. Van Diemen's Land. Mus. Cuming.

7. *MONILEA MENKEI*, A. Adams. *M. testa orbiculato-conoidea, umbilicata, sordide alba; anfractibus convexiusculis, supremis transversim liris, interstitiis longitudinaliter rugoso-reticulatis, infimis cingulis granulosis, confertis, granulis nonnullis majoribus ornatis; umbilici margine callo carneo, spirali, striato cincto; columella in medio sinuata, callo reflexo instructa, antice bituberculata; labro intus laevi.*

Hab. Masbate, Philippines. Mus. Cuming.

8. **MONILEA PHILIPPII**, A. Adams. *M. testa orbiculato-conoidea, umbilicata, sordide carnea, fusco radiatim picta; anfractibus convexiusculis, cingulis transversis, æqualibus, crenulatis, interstitiis longitudinaliter striatis ornatis; margine umbilici callo spirali, fusco, radiatim striato cincto; columella in medio sinuata, ecallosa, antice obsolete bituberculata.*

Hab. China Seas. Mus. Cuming.

The species most nearly resembling this is the *Trochus Belcheri* of Philippi, which I imagine is the *Trochus calyculus* of Wood.

9. **CLANCULUS NODULOSUS**, A. Adams. (Pl. XXVII. fig. 2.) *C. testa turbinato-conoidea, imperforata, albida, rubro variegata; anfractibus transversim sulcatis, et cingulis granosis ornatis, superne serie tuberculorum coronatis; sutura canaliculata; anfractu ultimo ambitu sulcato, ad peripheriam tuberculato, basi planiusculo, cingulis granosis ornato; columella superne soluta, tortuosa, antice tuberculata; margine umbilici crenulato; labro intus transversim sulcato, margine dentatolirato.*

Hab. Van Diemen's Land. Mus. Cuming.

This species has most of the characters of a *Clanculus*, but the whorls are nodulous and not granular.

10. **OMPHALIUS CÆLATUS**, A. Adams. *O. testa orbiculato-conoidea, apice obtusa, umbilicata, livido-carnea; anfractibus planiusculis, cingulis granorum confertis, æqualibus insculptis, interstitiis striatis, ultimo ad peripheriam subangulato; umbilico aperto, intus callo spirali instructo, callo antice dilatato et tuberculato; apertura orbiculari; columella arcuata, simplice; labro intus lævi.*

Hab. Mogador. Mus. Cuming.

The character of this shell is so peculiar, on account of the internal spiral callus of the umbilicus, and the absence of characters which constitute allied forms, that I propose to consider it a subgenus of *Omphalius*, under the name of *Anadema*.

11. **OMPHALIUS STICTICUS**, A. Adams. *O. testa depresso-conica, late et profunde umbilicata, rufescente, fusco maculata; anfractibus planis, cingulis nigro alboque articulatis, anfractu ultimo ad peripheriam angulato, basi convexa, concentrice sulcata; apertura orbiculari; umbilico aperto, perspectivo.*

Hab. New Caledonia. Mus. Cuming.

This is a very pretty little species, of a trochoid form, but somewhat difficult to refer to any known group; the form is like *Chlorostoma*, the markings like those of *Gibbula*, and the umbilicus as in *Omphalius*.

12. **GIBBULA PULCHERRIMA**, A. Adams. *G. testa umbilicata, turbinato-conoidea, alba, flammis coccineis radiatim picta; anfractibus convexis, cingulis granulosis, transversis ornatis, ad suturas plicato-nodosis, sutura canaliculata; anfractu ultimo rotundato, ad peripheriam canaliculato, basi convexa, maculis*

quadratis, in serie spirali dispositis ornata, et cingulis granosis insculpta; apertura suborbiculari; columella in medio excavata, in dentem terminata; labro intus lirato, margine crenulato; umbilico aperto, perspectivo.

Hab. China Seas.

In many respects this beautiful species of *Gibbula* resembles *Omphalius rubro-flammulatus*, Koch.

13. MARGARITA DILECTA, A. Adams. *M. testa orbiculato-conica, late umbilicata, nitente, albida, flammulis rufis radiatim picta; anfractibus convexis, cingulis elevatis, acutis, supremis crenulatis, interstitiis concinne longitudinaliter striatis ornatis; basi convexa, albida, sublevi, radiatim striata; umbilico perspectivo, margine crenulato.*

Hab. Straits of Magellan. Mus. Cuming.

14. MARGARITA ASPECTA, A. Adams. *M. testa turbinato-conica, late umbilicata, grisea, aureo-nitente, fusco maculata; anfractibus rotundis, ad suturas excavatis, cingulis elevatis, crenulatis, subdistantibus, transversis, interstitiis longitudinaliter striatis ornatis; basi convexa, cingulis concentricis insculpta; umbilico magno, aperto, cingula elevata cincto, intus liris concentricis et lineis radiantibus decussato.*

Hab. Australia. Mus. Cuming.

15. MARGARITA BIANGULOSA, A. Adams. *M. testa orbiculato-conica, late umbilicata, lævi, brunnea, lineolis undulatis, longitudinalibus concinne picta; anfractibus planulatis, superne angulatis, ultimo biangulato; suturis marginatis; basi convexa, cingulis concentricis insculpta; umbilico perspectivo, margine crenulato, intus lineis transversis et radiantibus eleganter decussato.*

Hab. Siam. Mus. Cuming.

P.S. Since my former communication on the *Trochidæ*, I have had an opportunity of seeing the monograph of *Trochus* by Dr. Philippi, and am enabled to add a few corrections and additional synonyms.

ZIZIPHINUS JAVANICUS, Lamarck.

Trochus Javanicus, Lamk. Hist. Nat. no. 50; Phil. *Trochus*, pl. 18. f. 5.—*Ziziphinus zonamestus*, A. Adams, Proc. Zool. Soc. no. 228, 1853.

CHLOROSTOMA NIGERRIMUM, Gmelin.

Trochus nigerrimus, Gmel.—*Trochus niger*, Chemn.—*Chlorostoma corrugatum*, A. Adams, Proc. Zool. Soc. no. 228, 1853 (var.).

GIBBULA PREISSIANA, Philippi.

Trochus Preissianus, Phil. Zeit. für Malac. 1848, p. 123; Mon. *Trochus*, pl. 28. f. 3.—*Gibbula porcellana*, A. Adams, Proc. Zool. Soc. no. 228. p. 186, 1853.

GIBBULA LEHMANNI, Menke.

Turbo Lehmanni, Menke, Moll. Nov. Holl. p. 18. no. 48.—*Trochus Lehmanni*, Phil. Mon. *Trochus*, pl. 28. f. 15.—*Gibbula pulchra*, A. Adams, Proc. Zool. Soc. no. 228. p. 187, 1853.

MONILEA CORRUGATA, Koch.

Trochus corrugatus, Koch; Phil. Abbild. p. 67. Troch. t. 2. f. 7; Phil. Mon. *Trochus*, pl. 25. f. 9.—*Monilea lentiginosa*, A. Adams, Proc. Zool. Soc. no. 228. p. 188.

MONILEA CRENULATA, Menke.

Monodonta crenulata, Menke, Moll. Nov. Holl. p. 14. no. 52.—*Trochus Solandri*, Phil. Mon. *Trochus*, pl. 28. f. 8.—*Monilea plumbea*, A. Adams, Proc. Zool. Soc. no. 228. p. 188.

DILOMA NIGERRIMA, Gmelin.

Turbo nigerrimus, Gmel. Chemn. v. pl. 185. f. 1848.—*Littorina nigerrima*, Menke.—*Turbo Quoyi*, Kien.—*Turbo Araucanus*, D'Orb.

5. DESCRIPTION OF A NEW GENUS AND OF SEVERAL NEW SPECIES OF GASTEROPODOUS MOLLUSCA, FROM THE CUMINGIAN COLLECTION. BY ARTHUR ADAMS, F.L.S. ETC.

(Mollusca, Pl. XXVII.)

LARINA, A. Adams. (Nov. gen.)

Operculum annular, horny, ovate; elements concentric; nucleus intramarginal near the middle of the inner edge.

Shell imperforate, semiglobose, thin; spire obtuse; whorls few, tumid, covered with an olivaceous epidermis, the last large and ventricose; aperture wide, ovate; outer lip simple, regular, acute.

This genus seems most to resemble *Amphibola*, but the operculum in that genus is subspiral, and not annular. From the circumstance of "Moreton Bay" being given as the locality, it would appear to be marine, thus affording us another example of a marine air-breathing Gasteropod.

1. LARINA STRANGEI, A. Adams. (Pl. XXVII. fig. 3.) *L. testa suborbiculari, imperforata, vix rimata, tenui, ampullacea; spira obtusa; anfractibus 3½, convexis, transversim sulcatis, epidermide olivacea, sæpius in lineis transversis elevata obtectis, anfractu ultimo ventricoso; apertura ovata, ampla; labro acuto, simplice.*

Hab. Moreton Bay (*Mr. Strange*). Mus. Cuming.

In young specimens the epidermis is disposed in transverse spiral ridges, and the surface of the shell is conspicuously striated longitudinally; in adult specimens the epidermis becomes abraded, and the surface exhibits some elevated transverse ridges.

2. **TYPHIS GRANDIS**, A. Adams. (Pl. XXVII. fig. 4.) *T. testa ovato-oblonga, sublævigata, quadrifariam varicosa, varicibus angulosis, crenulatis, postice truncatis, alba, rufo-variegata; anfractibus superne excavatis, in interstitiis tubulosis; apertura ovata, canali clauso; labro expanso, margine reflexo, crenulato.*

Hab. California. Mus. Cuming.

A very large, white, solid species, with the whorls tinged with red-brown, and excavated near the sutures.

3. **CAMITIA GRAYI**, A. Adams. *C. testa orbiculari, convexo-conoidea, lævissima, carnea, maculis subquadratis rufescentibus ad suturas ornata; peripheria albida, maculis transversalibus, rufo-fuscis, in seriebus duabus dispositis; infima facie albida.*

Hab. —? Mus. Cuming.

4. **DELPHINULA MARTINII**, A. Adams. (Pl. XXVII. fig. 8.) *D. testa subdiscoidea, late umbilicata, crassa, rubro-purpurea, transversim aspero-sulcata, costis transversis, spinis squamiformibus, curvatis, laciniatis armatis, instructa; spira retusa; anfractibus superne angulatis, tuberculato-asperis, anfractu ultimo soluto, disjuncto; apertura orbiculari, peristomate dilatato, margine laciniato.*

Hab. Padang (Capt. Martin). Mus. Cuming.

This is a large and handsome species, combining the form of *D. tyrria* with the lacinated ribs and sculpture of *D. atrata* of Chemnitz.

5. **DESMOULEA RINGENS**, A. Adams. (Pl. XXVII. fig. 6.) *D. testa ovato-acuta, ventricosa, rufo-fuscescente, longitudinaliter plicata, transversim sulcata, cancellata, scabriuscula, suturis canaliculatis; anfractibus superne angulatis, ultimo sulco profundo ad basin instructo; apertura coarctata, ringente; columella quadriplicata, plicis duabus anterioribus elatioribus; labro inflexo, intus valde corrugato-plicato.*

Hab. —? Mus. Cuming.

This singular shell has the characters of a *Desmoulea*, with the cancellated whorls and aspect of a *Nassa*; the ringent, plicate aperture is very conspicuous.

6. **GLADIUS (ROSTELLARIA) MELANOCEILUS**, A. Adams. (Pl. XXVII. fig. 9.) *G. testa fusiformi-turrita, pallide castanea; anfractibus convexiusculis, lævibus, supremis longitudinaliter costatis, ultimo gibboso, antice transversim sulcata; labio antice incrassato, reflexo; labro margine dentato, fusco-nigrescente; rostro praelongo, recto.*

Hab. Eastern Seas. Mus. Cuming.

The characters of this species are constant both in young and adult specimens, and are such as clearly separate it from *G. fusus*, with which it has hitherto been confounded.

February 14, 1854.

Dr. Gray, Vice-President, in the Chair.

The following papers were read :—

1. DESCRIPTION OF A NEW GENUS AND SPECIES OF SEAL
(*HELIOPHOCA ATLANTICA*), FROM MADEIRA.
By J. E. GRAY, PH.D., F.R.S., V.P.Z.S.

SOME months ago Mr. MacAndrew most kindly procured for me the skin of a Seal from the island of Madeira. A careful examination of it convinced me that it was a new species, most allied to *Phoca barbata* of the North Sea, but yet quite distinct from it. Mr. MacAndrew, after considerable trouble, at length obtained for me another skin of an older animal, with its skull, which proves that it is not only a new species, but presents such a combination of characters as entitle it to be considered the type of a new genus. It is the only species of Seal which I believe has yet been found so near the tropics on the African coast.

Both the specimens in the Museum came from the same cave in the *Deserta Grande Island*; the larger skin is full-grown, the other younger. Knight, in his 'Once on a Time,' speaks of the seals as common near Funchal; he observes, "A multitude of seals rush out from that hollow with a sudden cry, and plunge into the waves; that point shall be *Camara das Lobos*, the cave of seals." (i. p. 60.)

Mr. MacAndrew observes, that there is an island near the Canaries called *Isle Lobos*, on account of the number of seals formerly found there. It is very difficult of access, and Mr. MacAndrew could not hear of any existing there now, or of any remains of them.

The following are the characters of the genus :—

HELIOPHOCA.

Muzzle rather elongate, broad, hairy, with a slight groove between the nostrils; whiskers small, quite smooth, flat, tapering. Fore-feet short; fingers gradually shorter to the inner one; claws 5, flat, truncate. Hind-feet hairy between the toes; claws very small; hair short, adpressed, with very little or no under fur. Skull depressed; nose rather depressed, rather elongate, longer than the length of the zygomatic arch; palate angularly notched behind. Cutting teeth $\frac{6}{4}$, large, notched within, the middle upper much smaller, placed behind the intermediate ones. Canines, large, conical, sharp-edged. Grinders $\frac{5 \cdot 5}{5 \cdot 5}$, large, crowded, placed obliquely with regard to the central palatine line; crown large, conical, with several small conic rhombic tubercles. Lower jaw angulated in front below with diverging branches, the lower edge of the branches rounded, simple.

The feet, palate, and teeth resemble those of the genus *Callo-*

cephalus (*C. communis*), but the grinders are larger and less deeply lobed; and it has the smooth whiskers of the restricted genus *Phoca* (*P. barbata*). It differs from the latter genus in the depressed form of the skull, the large tubercular grinders, and the angular termination to the palate.

As the other subtropical Seal, *Phoca tropicalis* (Gray, Cat. Seals B.M. 28), from Jamaica, described from an imperfect skin without a skull, has similar small smooth whiskers, it may very probably, when its skull has been examined, be found to belong to this genus, which will then prove to be a subtropical form of the family.

Heliophoca Atlantica *.

Fur short, adpressed, olive-gray, very obscurely grised at the tips of the hairs: Chin and under parts of the body rather paler.

Length 5 feet 5 inches.

Hab. Madeira. R. MacAndrew, F.R.S., &c.

While on the subject of Seals, I may draw the attention of naturalists on the coast of the Pacific to the account of the *Sea Horses*, said to be found in abundance on the seaward part of the island of St. Lorenza near Callao, mentioned in M. Bonelli's Travels in Bolivia, i. 90 & 128.

I have never heard of the genus *Tricheus* living out of the Arctic Ocean, and should have believed that the author had mistaken the *Sea Bear* (*Otaria Leonina*) for the *Sea Horse*, if he did not describe "the two great white tusks projecting from the mouth on either side," and further observe, that "the tusks are of great value and form an important article of commerce" (see i. 90), which cannot apply to the tusks of the *Sea Bear*.

It is to be observed that the Peruvian continuation of the Antarctic current runs up the shores of Chili and Peru (see Journ. Roy. Geog. Soc. 1853) and chills that coast. This may explain why seals are found so near the tropics in those seas. I fear that M. Bonelli is not to be relied on for his natural-history observations, for he states that the cedar, mahogany and banyan trees (i. 79), and the date-palm (i. 146) grow on the coast of Peru.

* I have just received a well-preserved skin and the skeleton of this Seal from Algeria, under the name of *Phoca leporina*. It certainly cannot be the *Phoca leporina* of Lepechin, in Act. Acad. Petrop. 1777, 264. t. 8, 9 = the *Phoca Lepechinii*, Lesson, from the White Sea and the rivers flowing into it, which M. Nilsson considers to be the same as *P. barbata*; but I think this is doubtful, as Lepechin described the fur as dirty-white, sometimes with a yellow tinge without any spots, and the hair as erect, with abundance of under wool. The African Seal has very short, broad, closely adpressed hair, while Lepechin expressly states that the hair of *P. leporina* is not adpressed, but erect, and that his species is at once known from *Phoca barbata* by the large size of the grinders, which are very close together, and the last one very peculiarly placed across the line of the other teeth (Oct. 1854).

2. NOTES ON THE HABITS OF INDIAN BIRDS. PART II.
BY LIEUTENANT BURGESS.

Family STRIGIDÆ.

Genus URRUA, Hodgs.

URRUA BENGALENSIS.

I have found this large Owl common on the banks of the large rivers, as also amongst the low jungly hills and patches of brushwood in the Central Deccan. It appears to prefer the small bushy ravines covered with high grass, which lead down from the high banks into the beds of the larger streams and rivers. When seated on the top of a bush in the dim twilight, it forms quite a formidable object, the gloom making it appear larger than it really is. It does not appear to be strictly nocturnal, as I met with one sitting on the sandy shore of the river Bheema some time after the sun had risen. I never found the eggs of this bird; but I have been informed, on good authority, that they make their nest at the foot of bushes in the tall grass, and lay four white eggs. I kept three nestlings of this species for some time. When brought to me out of the nest, they were covered with down of a chestnut colour, spotted and streaked with dark brown. This Owl breeds during the months of March and April.

Genus NOCTUA.

NOCTUA INDICA, Frank.

This is a very common Owl in Western India, so much so that every grove, and almost every large tree, appears to have some of this clamorous family inhabiting its holes and crevices. It is a most noisy bird, screeching and screaming ere the shades of evening draw on, and becoming quite a nuisance to any one pitched under the tree frequented by them. It appears to be very little incommoded by a strong light, moving out of its hiding-place before the sun is down, flitting backwards and forwards amongst the branches and from tree to tree. In the month of June I saw a pair of these little Owls sitting on the bare branch of a tree, with the brilliant morning sun shining full on them; in fact, they appeared to be sunning themselves. On another occasion I shot a pair, sitting on a ledge of rock, in the full blaze of the setting sun. If disturbed during the day, they fly about with the greatest activity, uttering their squabbling note, and look down on the intruder from above with eyes that appear in no way incommoded by the light. In the stomachs of the last pair above mentioned, I found the wing-cases and legs of beetles. This little owl breeds during the months of February and March, laying three or four eggs of a pure white colour, nearly $1\frac{3}{10}$ in. long and $1\frac{1}{10}$ in. broad. They lay their eggs in holes of trees.

Order II. INSESSORES.

Tribe DENTIROSTRES.

Family LANIADÆ.

Subfamily LANIANA.

Genus LANIUS.

LANIUS HARDWICKII.

This handsome little Shrike migrates, I believe, from the Deccan for the purpose of breeding, probably resorting to the thickets and ravines of the Western Ghauts, and returning to the Deccan about September. I could not find its nest when on the hills in the month of October; but I shot a young bird, which may probably be the young of this species. I give a description of its plumage. Beak rich deep brown; chin and throat dirty brownish-white; under plumage and under tail-coverts white; flanks dull grey; white streak passing from the beak over the eye and ear-coverts; ear-coverts and patch behind the eye dull black; top of the head and nape of the neck brownish-grey, the feathers having very pale whitish ferruginous tips; feathers on the lower part of the neck and back are on their basal half grey, and the remaining portion greyish-brown with light tips. On the lower part of the back the feathers are very filmy and thick-set, of a grey colour, with a dark band near their ends, and tipped with white. Primaries hair-brown; bastard wing brown; greater coverts lighter brown with pale tips; secondaries hair-brown; tertials paler brown, with light edges. Tail consists of twelve feathers; the two outer are white, with pale brown near the ends on the outer webs. The next feather has also a dark spot near the tip on the inner web; the third feather is nearly black, with a white spot on the inner web about half an inch from the end; the remaining feathers are of a black-brown, being nearly black on the inner webs; lesser coverts pale brown with light tips; feathers on the thighs of a pale grey-brown with white tips; legs and feet lead-colour; claws pale brown; the legs and claws have a white powdered look in several places, especially near the junction of the scales. This may perhaps have been the young bird of the large rufous-backed Shrike, *Lanius erythronotus*.

LANIUS EXCUBITOR. LARGE GREY SHRIKE.

This is very common in the Deccan. It is generally seen seated on the top of small babool trees, or other thorny bushes, in open country, and may be distinguished at some distance by its silvery-white breast. When disturbed, it flies low to some neighbouring bush, on the top of which it alights, uttering its harsh and grating cry. The Grey Shrike begins to breed as early as January, as a boy brought me a pair of nearly fledged young ones on the 2nd of February. They almost, if not invariably build in a thorn bush, and generally well into the centre. I subjoin a note penned at the time of finding one of their nests:—"15th May. Saw a pair of Grey Shrikes building

in a place I never saw this species building in before, viz. on the *outside* branches of the babool tree. The nest was composed of a thorny twig or two of babool and thick bents of grass." Another nest was made in a thorny bush, about 5 feet from the ground, and *close* to the stem of the bush; it was composed of twigs of the thorn bush, pieces of cotton and a piece of rag, with grass interwoven into it. This nest contained three eggs. It is now in the Museum of the Zoological Society. The eggs are a little less than an inch in length, by a little less than $\frac{8}{10}$ in. wide, of a white ground, spotted and mottled, especially at the large end, with grey and red-brown.

I believe that this Butcher Bird, like the last-mentioned, migrates from the Deccan during the monsoon, returning about September. It would form a very interesting subject for investigation, as to what families of birds leave the Deccan during the monsoon, whither they betake themselves, and for what purposes. I have frequently made inquiries, but could not learn anything satisfactory on this subject.

Subfamily DICRURINÆ.

Genus DICRURUS.

DICRURUS MACROERCUS. DRONGO SHRIKE.

This bird is not much indebted to variety or richness of colouring in its plumage, for bringing it into notice; but its pleasant cheerful note and active habits must have been remarked by all observers of nature in India. Ere the peep of day it commences its pleasant twitter, and from sunrise to sunset it may be seen, now sitting on a bare spray watching for some passing insect, now perched on the back of a browsing cow or sheep, and then off in an instant in pursuit of a fly. I have seen one chase and capture a large white butterfly, which it appeared to have some difficulty in swallowing when caught, as it did not attempt to pull it to pieces, but was endeavouring to bolt it entire. They appear to have great antipathy to crows, chasing them with great vigour and boldness whenever one enters within their domain. I subjoin a note, made at the time, of the curious flight of these birds when hawking after flies. "Saw one of them (Drongo) perched on the outside branch of a tree hanging over a field of wheat; suddenly the Shrike descended close to the ears of corn on which the flies had settled in the heat of the sun, and commenced a most curious jerking flight up and down, as if it had been tossed up and down on the waves of the sea. After performing this dancing flight for some little time, it returned to its seat, and after remaining there a short time, descended and repeated its jerking flight." The Marahtha name is Kolsa, the word for charcoal, alluding I suppose to its jet-black colour. The Drongo begins to build in the month of May, and Dr. Jerdon mentions having found its nest as late as August. I found its nest in a bush in a thick hedgerow; it was composed of roots, and contained three eggs of a rather reddish creamy-white ground, spotted with red spots; the egg is $\frac{9}{10}$ in. long by rather more than $\frac{7}{10}$ broad. The food of the Drongo consists of insects, moths, and butterflies.

Genus PHÆNICORNIS, Swains.

PHÆNICORNIS PEREGRINUS, Vig.

I have not met with the nest and eggs of the small red bird, but I believe the description given below is that of a young bird soon after it had left the nest. "18th September 1849. Whole of the upper plumage olive-green, mottled about the head with pale yellow, a large spot of which is behind the eye; tips of the lesser wing-coverts pale. Primaries and secondaries dark, with pale edges; breast and belly pale whitish-yellow, with yellow streaks; legs and feet pale lead-colour; claws soft, as also the edges of the beak."

Genus IORA.

IORA TIPHIA.

I have never met with the nest or eggs of this handsome little bird; but Dr. Jerdon, in his Catalogue of Indian Birds, says, "I once, on the west coast, in the month of September, met with a nest of this species in the fork of a low tree; it was more neatly and carefully made than any other of the few nests I have seen in this country. It contained young ones." The Iora has a most wonderful power of voice. At one moment it is heard uttering a low plaintive cry, at the next a shrill whistle; no one could have believed the notes to have issued from the same throat. On the 29th of August, 1849, I shot a female. The eggs in the ovaries were very large. The gizzard contained the remains of a curious green insect, partly covered with black hair. The tongue of this bird is furnished with two long muscles, as in the woodpecker.

Genus HÆMATORNIS.

HÆMATORNIS CAFER. COMMON BULBUL.

This sprightly and truly Indian bird breeds during the months of August and September. The first time that I noticed them building in August was on the 11th, and I found a nest with one fresh-laid egg on the 25th of September. They build in thick bushes in gardens. I found two nests in my garden at Ahmednuggur, one built in a guava tree, and the other in a mass of creepers. The nest is composed of fine twigs, bound together here and there with cobwebs, and lined with fibres. The nest I send is lined with the fibre of the cocoa-nut picked off a cocoa-fibre mat. I observed the old birds picking at the mat when it was put out of doors. I do not know the number of eggs which their nest generally contains. The egg is $\frac{9}{10}$ in. in length by a little more than $\frac{6}{10}$ wide, of a rich madder colour, spotted and blotched with grey and madder-brown. The only egg which I possessed is unfortunately broken; but a drawing in my possession, most accurately painted by my sister-in-law, Miss Gardiner, gives it very correctly.

3. DESCRIPTIONS OF FORTY-TWO NEW SPECIES OF HELIX,
FROM THE COLLECTION OF H. CUMING, ESQ.
BY DR. L. PFEIFFER.

1. **HELIX URNULA.** *H. testa obtecte perforata, helicophantoidea, tenui, submembranacea, irregulariter oblique sulcata et malleata, parum nitida, pellucida, virenti-fusca; spira minuta, conoidea, apice obtusa, pallida; sutura profundiuscula; anfract. 3, convexis, rapidissime accrescentibus, ultimo magno, deorsum subcompresso, basi subexcavato; apertura obliqua, truncato-ovali, intus nitidissima; perist. simplice, obtuso, subinflexo, marginibus approximatis, columellari superne reflexo, adnato.*

Diam. maj. 16, min. 13, alt. 9 mill.

Hab. New Zealand.

2. **HELIX NEMATOPHORA.** *H. testa imperforata, depressa, tenui, costis filiformibus, subconfertis sculpta, diaphana, non nitente, corneo-lutea, maculis castaneis præsertim superne tessellato-variegata; spira plana; sutura impressa; anfract. 5½, convexiusculis, lente accrescentibus, ultimo altiore quam lato, antice non descendente, basi planiusculo; apertura subverticali, lunari, intus nitida; perist. simplice, recto, marginibus remotis, supero brevissimo, dextro subverticali, basali leviter arcuato, versus regionem umbilicalem dilatato, adnato.*

Diam. maj. 9½, min. 8, alt. 5 mill.

Hab. Salomon's Islands.

3. **HELIX QUITENSIS.** *H. testa subobtectè perforata, conoidea, tenui, lævigata, pellucida, lutescenti-hyalina; spira conoidea, acutiuscula; sutura profunda; anfract. 5, convexis, lente accrescentibus, ultimo non descendente, basi convexiusculo; apertura obliqua, lunari; perist. simplice, recto, marginibus distantibus, columellari declivi, sursum subdilatato, perforationem fere claudente.*

Diam. maj. 7, min. 6½, alt. 4 mill.

Hab. Quito.

4. **HELIX SACCATA.** *H. testa sinistrorsa, perforata, turbinato-depressa, tenuissima, oblique striatula et lineis spiralibus confertis minute decussata, vix nitidula, pellucida, rubello-cornea; spira subturbinata, acutiuscula; sutura impressa, anguste marginata; anfract. 4½, vix convexiusculis, celeriter accrescentibus, ultimo non descendente, compresse carinato, supra carinam oblique rugoso, basi convexo, antice saccato; apertura diagonali, contracta, subangulato-lunari; perist. simplice, recto, marginibus subconvergentibus, basali perarcuato, juxta perforationem non perviam breviter reflexo.*

Diam. maj. 28, min. 23, alt. 16 mill.

Hab. India.

5. **HELIX CAPITANEA.** *H. testa aperte perforata, turbinato-lenticulari, tenui, lævigata, sulcis spiralibus nonnullis obsoletissimis signata, nitidissima, pallide rubello-cornea, linea rufa immediate*

supra carinam, alteraque suturali ornata; spira conoidea, acutiuscula; sutura vix impressa; anfract. 5, planiusculis, celeriter accrescentibus, ultimo non descendente, medio subacute carinato, basi convexo; apertura subobliqua, tetragono-lunari; perist. simplice, recto, marginibus subparallelis, columellari substricto descendente, superne breviter reflexo.

Diam. maj. 23, min. 20, alt. 11 mill.

Hab. San Cristoval, Salomon's Islands (Capt. Keppell).

6. *HELIX NOVELLA.* *H. testa perforata, turbinato-depressa, tenuiuscula, leviter rugato-striata, diaphana, oleoso-micante, fusco-flavida; spira breviter turbinata, apice obtusula; sutura levi, submarginata; anfract. 5, vix convexiusculis, celeriter accrescentibus, ultimo superne convexiore, carina peripherica acuta, antice obtusa munito, non descendente, basi convexo; apertura obliqua, subtetragono-rotundata, intus margaritacea; perist. recto, obtusulo, margine basali ad dextram valde arcuato, tum subarcuatim ascendente, ad perforationem brevissime reflexo.*

Diam. maj. $21\frac{1}{2}$, min. 18, alt. 10 mill.

Hab. Ceylon (Mr. Thwaites).

7. *HELIX VERRUCULA.* *H. testa perforata, turbinata, tenui, superne grosse et regulariter granulata, sericea, pellucida, fusco-cornea; spira conoidea, obtusula; anfract. $4\frac{1}{2}$, vix convexiusculis, lente accrescentibus, ultimo medio acute compresso-carinato, antice non descendente, basi convexo, sublævigato, nitido; apertura vix obliqua, securiformi; perist. recto, acuto, margine columellari subverticali, superne brevissime reflexo, perforationem fere tegente.*

Diam. maj. $7\frac{1}{2}$, min. $6\frac{1}{2}$, alt. $4\frac{1}{2}$ mill.

Hab. Ceylon (Mr. Thwaites).

8. *HELIX REGULARIS.* *H. testa subobtectè perforata, regulariter coniformi, tenui, minutissime striata, pellucida, oleoso-micante, luteo-cornea; spira conica, acutiuscula; sutura vix impressa; anfract. 6, subplanis, lente accrescentibus, ultimo non descendente, acute carinato, basi planiusculo; apertura diagonali, depresso securiformi; perist. simplice, recto, marginibus remotis, columellari superne dilatato, subadnato.*

Diam. 3, alt. 3 mill.

Hab. New Zealand.

9. *HELIX KEPPELLI.* *H. testa subobtectè perforata, depressa, tenui, lævigata (sub lente minute striolata), nitida, pellucida, fulvo-cornea; spira brevissime conoidea, obtusula; sutura simplice, impressa; anfract. $5\frac{1}{2}$, vix convexiusculis, sensim accrescentibus, ultimo non descendente, periphèria rotundato, basi subexcavato; apertura parum obliqua, late lunari; perist. simplice, recto, marginibus vix convergentibus, columellari arcuatim descendente, superne calloso, breviter reflexo, adnato.*

Diam. maj. 16, min. 14, alt. 8 mill.

Hab. San Cristoval, Salomon's Islands (Capt. Keppell).

10. **HELIX MEDIOCRIS.** *H. testa vix subperforata, depressa, discoidea, tenui, laevigata, albido-hyalina; spira subplana; sutura impressa, submarginata; anfract. 4, vix convexiusculis, sensim accrescentibus, ultimo antice subdilatato, non descendente, rotundato, basi subexcavato; apertura verticali, late lunari; perist. simplice, recto, marginibus subconniventibus, dextro fortiter, basali leviter arcuato.*

Diam. maj. 5, min. $4\frac{1}{2}$, alt. $2\frac{1}{4}$ mill.

Hab. Santa Ana, New Granada.

11. **HELIX SWIFTI.** *H. testa angustissime umbilicata, convexo-depressa, tenui, confertim capillaceo-striata, sericea, fusco-cornea; spira parum elevata, vertice subtili; sutura impressa; anfract. 4, vix convexiusculis, sensim accrescentibus, ultimo non descendente, rotundato, peripheria obsolete angulato, circa perforationem subexcavato; apertura parum obliqua, late lunari; perist. simplice, recto, marginibus distantibus, columellari declivi, superne dilatato, patente.*

Diam. maj. $12\frac{1}{2}$, min. 11, alt. 6 mill.

Hab. St. Thomas (Bland), and Porto Rico, West Indies.

12. **HELIX SUBCONOIDEA.** *H. testa angustissime perforata, depressa, tenui, fragili, superne distincte costulata, pellucida, cornea; spira brevissime conoidea, vertice obtuso; anfract. 5, convexiusculis, lente accrescentibus, ultimo non descendente, supra medium subangulato, basi modice convexo, distanter radiato-striolato; apertura parum obliqua, lunari; perist. simplice, recto, marginibus vix convergentibus, columellari leviter arcuato, ad perforationem vix reflexiusculo.*

Diam. maj. $10\frac{3}{4}$, min. $9\frac{1}{2}$, alt. $5\frac{1}{2}$ mill.

Hab. Ceylon (Mr. Thwaites).

13. **HELIX NEWCOMBI.** *H. testa angustissime perforata, depressa, tenui, confertissime rugoso-striata, vix sericea, pellucida, cornea; spira brevissime conoidea, acutiuscula; sutura impressa, subcrenata; anfract. $3\frac{1}{2}$, convexiusculis, rapide accrescentibus, ultimo non descendente, peripheria obsolete angulato, basi convexo; apertura diagonali, lunato-subcirculari, intus margaritacea; perist. simplice, recto, marginibus approximatis, columellari perarcuato, superne vix reflexiusculo.*

Diam. maj. 11, min. 9, alt. 6 mill.

Hab. Oahu, Sandwich Islands (Dr. Newcomb).

14. **HELIX PLATTI.** *H. testa perforata, depressa, tenui, membranaceo-costulata et longe pilosa, diaphana, cornea; spira brevissime conoidea, acutiuscula; anfract. $5\frac{1}{2}$, vix convexiusculis, sensim accrescentibus, ultimo non descendente, superne subplano, obsolete angulato, basi convexo; apertura vix obliqua, late lunari; perist. simplice, recto, marginibus distantibus, basali levissime arcuato, columellari superne perdilatato, fornicatim reflexo.*

Diam. maj. 10, min. 9, alt. 6 mill.

Hab. Natal, South Africa (Mr. Platt).

15. *HELIX ISABELLINA*. *H. testa perforata, depressa, tenui, minutissime granulato-rugulosa, sericea, pellucida, pallide isabellina; spira brevissima, convexa, vertice subprominulo; sutura lineari; anfract. 5, subplanis; sensim accrescentibus, ultimo acute carinato, ontice non descendente, basi inflato; apertura obliqua, lunato-securiformi; perist. recto, acuto, margine basali regulariter arcuato, columellari superne in laminam brevem, triangularem reflexo.*

Diam. maj. 33, min. 27, alt. 14 mill.

Hab. Ceylon (*Mr. Thwaites*).

16. *HELIX MORETONENSIS*. *H. testa perforata, conoideo-lenticulari, tenui, superne subarcuato-plicata, haud nitida, rufa; spira conoidea, subacuminata; sutura simplice, impressa; anfract. 5½, convexiusculis, lente accrescentibus, ultimo non descendente, periphæria subacute carinato, busi convexo, sublævigato, albido; apertura obliqua, subangulato-lunari, intus margaritacea; perist. recto, acuto, marginibus subparallelis, columellari superne in laminam brevem, latam, triangularem reflexo.*

Diam. maj. 19, min. 17, alt. 10 mill.

Hab. Moreton Bay, Australia (*Mr. Strange*).

17. *HELIX GLABERRIMA*. *H. testa umbilicata, depressa, solidula, glaberrima, nitidissima, pallide corneo-lutescente; spira parum elevata, vertice subtili, subprominulo; sutura obsolete marginata; anfract. 5½, modice convexis, sensim accrescentibus, ultimo non descendente, subdepresso, basi albido, planiusculo; apertura fere diagonali, oblique lunata, dextrorsum producta, intus margaritacea; perist. simplice, recto, marginibus convergentibus, columellari oblique ad umbilicum mediocrem, pervium ascendente, superne vix dilatato, patente.*

Diam. maj. 12, min. 10½, alt. 5½ mill.

Hab. Salomon's Islands.

18. *HELIX SANTANAENSIS*. *H. testa umbilicata, conoideo-depressa, tenui, striatula, nitida, pellucida, lutescenti-hyalina; spira brevissime conoidea, vertice subtili; sutura profunda; anfract. 5, convexis, angustis, ultimo vix latiore, non descendente, terete; umbilico conico, ⅓ diametri fere æquante; apertura parvula, parum obliqua, rotundato-lunari; perist. simplice, recto, marginibus vix convergentibus, regulariter arcuatis.*

Diam. maj. 4½, min. 4, alt. 2½ mill.

Hab. Santa Ana, New Granada.

19. *HELIX KAWAIENSIS*. *H. testa umbilicata, convexo-depressa, tenuiuscula, sublævigata, cerea; spira convexa, obtusula; sutura impressa; anfract. 4½, convexiusculis, lente accrescentibus, ultimo non descendente, terete; umbilico latiusculo, ¼ diametri superante, conico; apertura parvula, obliqua, lunato-rotundata; perist. simplice, recto, marginibus convergentibus, columellari superne vix reflexiusculo.*

Diam. maj. 3¼, min. 3, alt. 1½ mill.

Hab. Kawai, Sandwich Islands (*Dr. Newcomb*).

20. *HELIX SUBANGULATA*. *H. testa umbilicata, convexo-depressa, solidula, striatula, vix nitidula, cerea, fascia angusta, castanea prope suturam, duabusque latioribus infra peripheriam ornata; spira brevi, convexa, obtusa; anfract. $4\frac{1}{2}$, convexiusculis, sensim accrescentibus, ultimo non descendente, periphæria subangulato, basi subplano; apertura obliqua, rotundato-subtrapezoidalis; perist. simplice, recto, marginibus subparallelis, columellari juxta umbilicum mediocrem, conicum dilatato, patente.*

Diam. maj. 17, min. 14, alt. 8 mill.

Hab. Van Diemen's Land.

21. *HELIX HONDANA*. *H. testa umbilicata, convexo-depressa, striatula, pallide lutescente; spira convexiuscula, vertice subtili, prominulo; anfract. 6, parum convexis, lente accrescentibus, ultimo non descendente, depresso-rotundato; umbilico latissimo, $\frac{1}{3}$ diametri superante; apertura parvula, obliqua, rotundato-lunari; perist. simplice, recto, marginibus conniventibus, basali regulariter arcuato.*

Diam. maj. $7\frac{3}{4}$, min. 7, alt. $3\frac{3}{4}$ mill.

Hab. Honda, New Granada.

22. *HELIX STRONGYLODES*. *H. testa umbilicata, convexo-depressa, solidula, oblique costulata, albida, maculis rufis superne variegata; spira parum elevata, obtusa; anfract. 6, sensim accrescentibus, primis planiusculis, sequentibus convexis, ad suturam tumidis, ultimo non descendente, terete; umbilico perspectivo, $\frac{1}{3}$ diametri æquante; apertura diagonali, lunato-rotundata; perist. simplice, recto, marginibus subconvergentibus, columellari superne fornicatim patente.*

Diam. maj. 19, min. $16\frac{1}{2}$, alt. $8\frac{1}{2}$ mill.

Hab. Texas.

23. *HELIX BULLACEA*. *H. testa umbilicata, convexo-depressa, tenui, superne confertissime capillaceo-striata, sericea, pellucida, pallide cornea; spira vix convexa, vertice subtili; sutura simplice, impressa; anfract. 4, convexiusculis, celeriter accrescentibus, ultimo antice non descendente, periphæria rotundato, lævigato, basi convexo, radiato-striato, corneo-virente; umbilico mediocri, conico; apertura magna, obliqua, lunato-rotundata, intus margaritacea; perist. simplice, recto, marginibus conniventibus, columellari superne triangulatim patente.*

Diam. maj. $17\frac{1}{2}$, min. 14, alt. 9 mill.

Hab. Moreton Bay, Australia (*Mr. Strange*).

24. *HELIX LAMPRA*. *H. testa umbilicata, convexo-depressa, tenui, subarcuatim confertissime striata, nitidissima, saturate virenti-castanea; spira parvula, convexa, vertice obtuso; anfract. vix 4, convexiusculis, rapide accrescentibus, ultimo non descendente, rotundato, basi læviore, virenti-flavo; apertura obliqua, lunato-circulari, intus cærulescente; perist. simplice, recto, marginibus convergentibus, supero antrorsum dilatato, columellari*

leviter arcuato, juxta umbilicum angustum, vix pervium breviter fornicato-patente.

Diam. maj. 20, min. 16, alt. 10 mill.

Hab. Van Diemen's Land.

25. *HELIX EXCISA.* *H. testa umbilicata, depressa, tenuiuscula, confertim arcuato-costellata, diaphana, pallide lutescente; spira vix convexa; sutura impressa; anfract. 4, vix convexiusculis, lente accrescentibus, ultimo non descendente, subdepresso, basi angustiore; umbilico latissimo, $\frac{2}{3}$ diametri subæquante; apertura minuta, obliqua, lunato-rotundata; perist. simplice, recto, marginibus convergentibus, dextro superne recedente, subexerciso.*

Diam. maj. $4\frac{1}{2}$, min. 4, alt. 2 mill.

Hab. Santa Ana, New Granada.

26. *HELIX EUSPIRA.* *H. testa umbilicata, depressa, discoidea, solidula, arcuato-striata, lineis impressis spiralibus irregulariter decussatula, sub epidermide nitida, virenti-fulva alba; spira plana; sutura parum impressa; anfract. $4\frac{1}{2}$, subplanulatis, sensim accrescentibus, ultimo non descendente, depresso; umbilico perspectivo, $\frac{1}{3}$ diametri fere æquante; apertura obliqua, rotundato-lunari, intus margaritacea; perist. simplice, recto, marginibus convergentibus, dextro antrorsum dilatato, columellari brevissime patente.*

Diam. maj. 26, min. $22\frac{1}{2}$, alt. 9 mill.

Hab. Brazils.

27. *HELIX THOMASI.* *H. testa umbilicata, depressa, subdiscoidea, tenui, striatula, parum nitente, lutescenti-hyalina; spira subplana; sutura impressa; anfract. 5, convexiusculis, lente accrescentibus, ultimo non descendente, subdepresso; umbilico $\frac{1}{4}$ diametri superante, perspectivo; apertura vix obliqua, lunato-rotundata; perist. simplice, recto, marginibus conniventibus, dextro antrorsum subdilatato, columellari superne vix patente.*

Diam. maj. $7\frac{1}{3}$, min. $6\frac{1}{3}$, alt. $3\frac{1}{2}$ mill.

Hab. Marmato, New Granada.

28. *HELIX BOMBYCINA.* *H. testa umbilicata, depressa, discoidea, tenui, costulis confertis, subarcuatis, subtus minoribus sculpta, sericea, fulva, fasciis permultis castaneis ornata; spira subplana; sutura impressa; anfract. 4, vix convexiusculis, celeriter accrescentibus, ultimo depresso, antice non descendente, basi parum convexo; umbilico perspectivo, $\frac{1}{4}$ diametri subæquante; apertura diagonalis, lunato-circulari; perist. simplice, recto, marginibus approximatatis, dextro antrorsum per dilatato, basali per arcuato, ad umbilicum vix dilatato.*

Diam. maj. $14\frac{1}{2}$, min. $11\frac{1}{2}$, alt. 6 mill.

Hab. Van Diemen's Land.

29. *HELIX AMMONOCERAS.* *H. testa umbilicata, depressissima, tenui, arcuato-striata, nitida, pellucida, pallide cornea; spira minuta, subimmersa; sutura profunda; anfract. fere 4, planiusculis, rapide accrescentibus, ultimo non descendente, depressissimo, peri-*

pheria obsolete angulato, basi angustiore; umbilico lato, $\frac{1}{3}$ diametri subæquante; apertura obliqua, subtriangulari-lunari; perist. simplice, recto, marginibus vix convergentibus, supero substricto, antrorsum dilatato, basali arcuato.

Diam. maj. $4\frac{1}{2}$, min. $3\frac{3}{4}$, alt. vix $1\frac{1}{2}$ mill.

Hab. Santa Ana, New Granada.

30. *HELIX MEMBRANICOSTA.* *H. testa mediocriter umbilicata, trochiformi, tenui, costulis radiantibus membranaceis, præsertim facie inferiore munita, parum nitida, fusco-cornea; spira conica, acutiuscula; anfract. 7, convexiusculis, lente accrescentibus, ultimo non descendente, peripheria carinato, subtus convexiore; apertura obliqua, subtetragono-lunari; perist. simplice, recto, marginibus remotis, columellari superne dilatato, patente.*

Diam. maj. 11, min. 10, alt. 7 mill.

Hab. Salomon's Islands.

31. *HELIX NAVIGATORUM.* *H. testa mediocriter umbilicata, lentiformi, solidula, oblique striata, sub epidermide nitida, purpurascenti-fusca rubello-grisea; spira convexa, obtusa; sutura marginata; anfract. 5, convexiusculis, sensim accrescentibus, ultimo non descendente, supra medium compresse carinato, basi convexiore; apertura diagonali, lunato-rotundata, subangulata; perist. recto, obtuso, marginibus subconvergentibus, supero antrorsum subdilatato, basali arcuato, prope umbilicum vix dilatato, patente.*

Diam. maj. $18\frac{1}{2}$, min. 16, alt. $7\frac{1}{2}$ mill.

Hab. Navigators' Islands.

32. *HELIX SEMICONVEXA.* *H. testa umbilicata, depressa, tenuiuscula, minute striata, castanea, sericea; spira vix elevata, medio pallida, vertice subtili, obtuso; sutura impressa, distincte marginata; anfract. $4\frac{1}{2}$, convexiusculis, sensim accrescentibus, ultimo non descendente, peripheria compresse carinato, basi inflato, umbilico mediocri, conico; apertura obliqua, securiformi, intus cærulescente; perist. simplice, recto, marginibus vix convergentibus, basali perarcuato, ad umbilicum subdilatato, patente.*

Diam. maj. 14, min. $11\frac{1}{2}$, alt. $6\frac{1}{2}$ mill.

Hab. Salomon's Islands.

33. *HELIX PIRRIEANA.* *H. testa perforata, globoso-conica, tenui, lævigata (sub lente vix striatula), pellucida, cornea; spira convexo-conica, acutiuscula; sutura impressa, marginata; anfract. 7-8, convexiusculis, angustissimis, ultimo carinato, non descendente, basi convexo, intus ter bidenticulato; denticulis subæqualibus, extus pellucetibus; apertura vix obliqua, depressa, angulato-lunari, denticulorum pari antico coarctata; perist. simplice, recto, margine columellari ad perforationem apertam dilatato, reflexo.*

Diam. maj. 5, min. $4\frac{1}{2}$, alt. 4 mill.

Hab. Walaghat, Koondah Mountains, near Calicut, India (*Mr. Pirrie*).

34. *HELIX RADIARIA.* *H. testa subobtectè perforata, trochiformi, tenuiuscula, striatula, parum nitente, diaphana, luteo-albida, su-*

perne strigis spadiceis irregulariter signata; spira conoidea, obtusula; anfract. $5\frac{1}{2}$, convexiusculis, sensim accrescentibus, ultimo non descendente, periphæria obsolete angulato, basi unicolore, subplano; apertura fere diagonali, lunari, intus nitida; perist. subsimplice, marginibus distantibus, dextro recto, antrorsum dilatato, basali incrassato, declivi, superne subdilatato.

Diam. maj. 10, min. 9, alt. 7 mill.

Hab. Salomon's Islands.

35. *HELIX SCYTODES*. *H. testa umbilicata, conoidea, tenuiuscula, sub lente granulato-rugosa, vix nitidula, rubello-cornea; spira regulariter conoidea, obtusula; sutura rufo-marginata; anfract. $6\frac{1}{2}$, convexiusculis, lente accrescentibus, ultimo periphæria acute rufo-carinato, antice vix descendente, basi convexo, circa umbilicum mediocrem obsolete compresso; apertura diagonali, lunato-rotundata; perist. tenui, marginibus conniventibus, supero leviter arcuato, recto, basali breviter reflexo, columellari subverticali, subdilatato, patente.*

Diam. maj. 14, min. 13, alt. 7 mill.

Hab. Salomon's Islands.

36. *HELIX LUTEO-CORNEA*. *H. testa subanguste umbilicata, conoideo-lentiformi, solida, capillaceo-striata, sericea, luteo-cornea; spira convexa, vix conoidea, obtusa; sutura simplice, impressa; anfract. 5, convexis, sensim accrescentibus, ultimo non descendente, medio angulato (angulo antrorsum obsoletiore), basi subconvexo; apertura fere diagonali, lunato-rotundata, intus albida, nitida; perist. simplice, marginibus subconvergentibus, supero leviter arcuato, recto, basali incrassato, prope umbilicum subdilatato, patente.*

Diam. maj. 18, min. 16, alt. $8\frac{1}{2}$ mill.

Hab. Navigators' Islands.

37. *HELIX ÆRUGINOSA*. *H. testa imperforata, globoso-depressa, tenuiuscula, striatula, nitidula, virenti-albida; spira convexa, vertice subtili, obtuso; anfract. 4, convexiusculis, sensim accrescentibus, ultimo non descendente, inflato, periphæria obsolete angulato, ad suturam ærugineo-fasciato; columella declivi, vix arcuata, subexcavata, alba; apertura obliqua, late lunari; perist. vix reflexiusculo, marginibus subconniventibus, dextro sinuoso, basali arcuatim in columellam abeunte.*

Diam. maj. 31, min. 26, alt. 18 mill.

Hab. Philippine Islands.

38. *HELIX ABNORMIS*. *H. testa imperforata, trochiformi, solida, minute granulata, haud nitente, rufa, sursum alba; spira conoidea, obtusa; anfract. $5\frac{1}{2}$, convexis, lente accrescentibus, ultimo antice vix descendente, periphæria subrotundato, basi plano; apertura fere horizontali, rotundato-lunari; perist. subincrassato, marginibus parallelis, callo tenui junctis, supero breviter expanso, basali ad dextram dentem conicum gerente, versus regionem umbilicalem sensim dilatato, reflexo, adnato.*

Diam. maj. 42, min. 35, alt. 23 mill.

Hab. Jamaica.

39. *HELIX SANNIO*. *H. testa sinistrorsa, angustissime umbilicata, turbinato-depressa, solida, oblique costulato-striata, vix nitidula, superne pallide flavicante; spira conoidea, obtusula; anfract. 6½, vix convexiusculis, lente accrescentibus, ultimo non descendente, antice rugato, periphæria carinato, subtus convexo, cinnamomeo; apertura diagonali, lunari, intus alba, nitida; perist. incrassato, breviter reflexo, marginibus distantibus, basali substricto, superne sinuato, in laminam triangularem reflexo.*

Diam. maj. 38, min. 32½, alt. 21 mill.

Hab. —?

40. *HELIX MANSUETA*. *H. testa umbilicata, depressa, tenuiuscula, striatula et sub lente minutissime granulata, non nitente, nigro-rufa vel cinnamomea; spira brevissime conoidea, vertice subtili; sutura impressa; anfract. 5, convexiusculis, sensim accrescentibus, ultimo antice vix descendente, periphæria obsolete angulato, circa umbilicum apertum, mediocrem saturate fasciato; apertura obliqua, lunari; perist. roseo, breviter expanso, marginibus distantibus, columellari superne dilatato, fornicato-patente.*

Diam. maj. 15½, min. 13½, alt. 8 mill.

Hab. Moreton Bay, Australia (Mr. Strange).

41. *HELIX MARMATENSIS*. *H. testa umbilicata, depressa, tenuiuscula, vix striatula, albida, superne maculis castaneis fasciatim dispositis ornata; spira plana, vertice subtili vix prominente; anfract. 4½, convexis, ultimo rotundato, antice vix descendente, circa umbilicum angustum obsolete compresso; apertura obliqua, rotundato-lunari; perist. tenui, marginibus convergentibus, dextro breviter expanso, columellari superne dilatato, patente.*

Diam. maj. 12, min. 10½, alt. 6 mill.

Hab. Marmato, New Granada.

42. *HELIX SCEPASMA*. *H. testa umbilicata, conoidea, solida, ruguloso-striata, opaca, alba; spira regulariter conoidea, vertice acutiusculo; sutura subimpressa; anfract. 7, vix convexiusculis, lente accrescentibus, ultimo antice paululum descendente, periphæria acute carinato, basi circa umbilicum mediocrem, profundum turgido; apertura diagonali, lunari; perist. subincrassato, angulatim reflexo, marginibus vix convergentibus, columellari breviter patente.*

Diam. maj. 20, min. 18, alt. 11 mill.

Hab. —?

4. DESCRIPTIONS OF FOUR NEW SPECIES OF *BULIMUS* FROM THE COLLECTION OF H. CUMING, ESQ. BY DR. L. PFEIFFER.

1. *BULIMUS VITELLINUS*, Pfr. *B. testa umbilicata, globoso-conica, solidula, oblique striata, nitidula, luteo-fulva; spira conica, apice obtusa; anfract. 6, rotundatis, ultimo spiram æquante, medio obtuse angulato, circa umbilicum apertum, non pervium subcom-*

presso; apertura diagonali, lunato-ovali, intus submargaritacea; perist. tenui, recto, margine columellari leviter arcuato, sursum valde dilatato, fornicato-patente.

Long. 22, diam. 16 mill.

Hab. Natal.

2. *BULIMUS PICTUS*, Pfr. *B. testa anguste umbilicata, ovato-conica, tenuiuscula, sublevigata, pallide lutea, fasciis spadiceis, interruptis strigisque sparsis elegantissime subtessellata; spira conica, acutiuscula; sutura levissime crenulata; anfract. 7, convexiusculis, ultimo $\frac{2}{3}$ longitudinis æquante, basi rotundato, infra medium et circa umbilicum fasciis non interruptis signato; apertura parum obliqua, elliptico-ovali; perist. simplice, recto, margine dextro regulariter arcuato, columellari leviter arcuato, sursum dilatato, fornicato-patente.*

Long. 23, diam. 11 mill.

Hab. Peru.

3. *BULIMUS RADIOSUS*, Pfr. *B. testa semi-obtecte perforata, oblongo-conica, tenuiuscula, striatula, lineis impressis, spiralibus, subconfertis decussatula, albida, strigis epidermidis virenti-fulvæ radiata; spira conica, acuta; anfract. $5\frac{1}{2}$, superis planis, sequentibus convexis, ultimo spira paulo brevior, infra medium obsolete angulato; apertura parum obliqua, oblonga; perist. simplice, margine dextro recto, superne arcuato, columellari subtorto, superne dilatato, fornicato-reflexo.*

Long. 21, diam. 10 mill.

Hab. New Hebrides.

4. *BULIMUS GALAPAGANUS*, Pfr. *B. testa compresse umbilicata, ovato-turrita, tenui, striatula, sericea, pellucida, corneo-cerea; spira convexo-turrita, acutiuscula; sutura submarginata; anfract. 8, convexis, ultimo $\frac{1}{3}$ longitudinis subæquante, juxta umbilicum compresso; apertura subverticali, oblongo-ovali; perist. simplice, margine dextro vix expansiusculo, superne arcuato, cum columellari introrsum subtorto, patente angulum formante.*

Long. $15\frac{1}{2}$, diam. 6 mill.

Hab. Galapagos Islands.

5. MONOGRAPHS OF ACTÆON AND SOLIDULA, TWO GENERA OF GASTEROPODOUS MOLLUSCA WITH DESCRIPTIONS OF SEVERAL NEW SPECIES FROM THE CUMINGIAN COLLECTION. BY ARTHUR ADAMS, F.L.S., SURGEON R.N.

Genus ACTÆON, Montfort.

Head in the form of a quadrate disk, bilobed in front, with broad posterior tentacular lobes; eyes sessile, on the middle of the head; mantle included; branchial plume single.

Operculum horny, sub-spiral.

Shell thin, ovate, transversely striated; spire produced, acute; aperture narrow, elongated, anteriorly rounded and entire; inner lip thin; columella with a single oblique spiral fold.

Tornatella, Lamarck.—? *Myosota*, Humph.—*Spes*, Risso.—*Kanilla*, Silvertop.

1. ACTÆON TORNATILIS, Linnæus.

Voluta tornatilis, Linn. Syst. Nat. ed. 12. p. 1187.—*Turbo ovalis*, Da Costa.—*Bulimus tornatilis*, Brug.—*Tornatella fasciata*, Lamk.—*Voluta bifasciata*, Gmel.—*Spes bifasciatus*, Risso.—*Tornatella pelucida* et *Torn. pusilla*, Macgilliv.

2. ACTÆON FLAMMEUS, Gmelin.

Voluta flammea, Gmel. p. 3435. no. 2.—*Bulimus variegatus*, Brug.—*Tornatella flammea*, Lamk.

3. ACTÆON VIRGATUS, Reeve.

Tornatella virgata, Reeve, Proc. Zool. Soc. May, 1842; Conch. Syst. vol. ii. pl. 206. f. 8, 9.

4. ACTÆON SIEBALDII, Reeve.

Tornatella Siebaldii, Reeve, Proc. Zool. Soc. May, 1842.

5. ACTÆON ORYZA, Reeve.

Tornatella oryza, Reeve, Proc. Zool. Soc. May, 1842.

6. ACTÆON SENEGALENSIS, Petit.

Tornatella Senegalensis, Petit, Journ. de Conch. Nov. 1851.

7. ACTÆON VENUSTUS, D'Orbigny.

Tornatella venusta, D'Orb. Voy. dans l'Amér. Mérid., Moll. p. 339. pl. 56. f. 4–6.

8. ACTÆON BEVALETTII, Baudon.

Tornatella Bevalettii, Baudon, Journ. de Conch. 1853, p. 214. pl. 6. f. 5.

9. ACTÆON PUNCTO-STRIATUS.

Tornatella puncto-striata.

10. ACTÆON CUMINGII, A. Adams. *A. testa ovali, subcylindracea, carnea, spira exserta, anfractibus convexis, transversim sulcata, sulcis pulcherrime cancellatis, longitudinaliter striata; columella antice uniplicata; apertura intus alba; labro acuto, postice subsinuato.*

Hab. Rio Janeiro (*Capt. Martin*). Mus. Cuming.

This species somewhat resembles *A. tornatilis* in appearance; but it is of a uniform flesh-colour, and the whorls are strongly sulcate, the grooves being prettily crenate at their margins and finely cancellated.

11. ACTÆON DIANÆ, A. Adams. *A. testa ovato-conica, umbili-*

cata, spira elata, anfractibus convexis, ultimo ventricoso, alba, transversim valde lirata, interstitiis concinne clathratis; apertura ovali; columella uniplicata; labio antice subreflexo; labro margine crenulato.

Hab. Japan (*Dr. Siebold*). Mus. Cuming.

This species is ovately conical, with the last whorl ventricose; it is of a pure white, with the whorls strongly lirate and the interstices punctate; the plait on the columella is situated in the middle, and is not very strongly produced.

12. *ACTÆON PUDICUS*, A. Adams. *A. testa ovali, subcylindracea, subumbilicata, solida, sordide albida, subcarnea, spira elatiuscula; anfractibus convexis, transversim sulcatis, sulcis æqualibus, punctatis; apertura oblonga; columella valde uniplicata.*

Hab. Cagayan, Mindanao. Mus. Cuming.

For an *Actæon*, this species is rather solid; the shell, though worn, exhibits a delicate pinkish tinge, and the whorls are strongly punctate-striate.

13. *ACTÆON MARIE*, A. Adams. *A. testa ovato-cylindracea, spira obtusa, longitudinaliter substriata, transversim lirata, liris in medio sulco impresso, interstitiis concinne clathratis, sordide alba, fasciis duabus transversis, cinereis ornata; apertura oblonga; columella uniplicata.*

Hab. China Seas. Mus. Cuming.

In this species the whorls are ornamented with two spiral, transverse, ash-coloured bands, and the liræ are double, each being divided in the middle by a fine transverse groove.

14. *ACTÆON MODESTUS*, A. Adams. *A. testa elongato-conica, subpellucida, tenui, alba, spira turrato-acuta, anfractibus convexiusculis, transversim sulcata, sulcis æquidistantibus, punctatis, longitudinaliter striata; apertura ovali; columella obliqua, uniplicata.*

Hab. Corrigidor, 7 fathoms. Mus. Cuming.

This is an elongated semipellucid species, resembling more a *Monoptygma* than an *Actæon*, with the spire elevated, and the plait on the columella near the hind part.

Genus *SOLIDULA*, Fischer.

Animal as in *Actæon*.

Operculum transverse, elongated, curved, with imbricate elements and a linear scar.

Shell thick, solid, ovate, transversely sulcate; spire elevated, acute; aperture longitudinal, narrow, entire and rounded in front; inner lip callous; columella with two plaits, the anterior grooved and continued into the outer lip.

? *Buccinulus*, Planc.—*Dactylus*, Schum., not Klein.—*Pupa*, Bolt., not Humph.

1. *SOLIDULA SOLIDULA*, Linnæus.

Voluta solidula, Linn. Syst. Nat. ed. 12. p. 1187; Chemn. Conch. vol. x. pl. 149. f. 1405.—*Bulimus solidulus*, Brug.—*Bulla solidula*, Linn.—*Helix nævia*, Gmel.—*Tornatella solidula*, Lamk.

2. *SOLIDULA COCCINATA*, Reeve.

Tornatella coccinata, Reeve, Proc. Zool. Soc. May 1842; Conch. Syst. ii. pl. 206. f. 10.

3. *SOLIDULA GLABRA*, Reeve.

Tornatella glabra, Reeve, Proc. Zool. Soc. May 1842; Conch. Syst. ii. pl. 206. f. 12.

4. *SOLIDULA TESSELLATA*, Reeve.

Tornatella tessellata, Reeve, Proc. Zool. Soc. 1842; Conch. Syst. ii. pl. 206. f. 3.

5. *SOLIDULA NITIDULA*, Lamarck.

Tornatella nitidula, Lamk. Anim. s. Vert. ed. Desh. vol. iv. p. 42; Kien. Mon. Tornat. pl. 1. f. 5; Reeve, Conch. Syst. ii. pl. 206. f. 5.

6. *SOLIDULA INSCULPTA*, Reeve.

Tornatella insculpta, Reeve, Proc. Zool. Soc. 1842; Conch. Syst. ii. pl. 206. f. 2.

7. *SOLIDULA AFFINIS*, A. Adams. *S. testa cylindraceo-ovata, spira acuminata, apice acuta, albo-lutescente, colore varia sæpius picta, maculis subquadratis, irregularibus, nigrescentibus tessellata, transversim sulcata, sulcis crenulatis, inæqualibus, subdistantibus; columella biplicata, plica postica obsoleta, antica biloba.*

Hab. China Seas; New Ireland; Borneo; Philippines. Mus. Cuming.

This species most nearly resembles *S. solidula*; the colour varies from uniform reddish-brown to whitish, tessellated with ashy or blackish markings.

8. *SOLIDULA SUTURALIS*, A. Adams. *S. testa cylindraceo-ovata, spira elata; anfractibus planiusculis, superne angulatis, suturis canaliculatis, alba, maculis cinereis sæpius tessellata, longitudinaliter striata, transversim lirata, interstitiis cancellatis; columella uniplicata, plica biloba.*

Hab. Island of Luzon, sandy mud. Mus. Cuming.

In this species the hind tubercle usually present in *Solidula* is wanting; the colour varies from pure white to greyish, with grey tessellated markings; the chief peculiarity of the species consists, however, in the canaliculated suture of the whorls.

9. *SOLIDULA PUSILLA*, A. Adams. *S. testa ovato-conica, parva, alba, solida, nitida, spira exserta, apice obtuso, transversim valde sulcata, sulcis distantibus, cancellatis; apertura elon-*

gata, postice attenuata; columella biphcata, plica postica tuberculiformi, antica biloba.

Hab. Catbalonga; Samaar, 8 fathoms; Philippines. Mus. Cuming.

This is a small white solid species, resembling in appearance the *Actæon oryza* of Reeve; but the columella is biphcate, and the front plica is double.

6. DESCRIPTIONS OF NEW SPECIES OF SHELLS, FROM THE
COLLECTION OF HUGH CUMING, ESQ.
BY G. P. DESHAYES.

1. *MACTRA APHRODINA*, Desh. *M. testa transversa, ovato-trigona, tenui, depressiuscula, inæquilaterali, albido-violacea, zonulis transversis, saturatioribus irregulariter interrupta, transversim regulariter eleganterque striata; latere antico paululum attenuato, superne recto, declivi, postico æqualiter obtuso; umbonibus minimis, acutis, parum prominentibus, albidis; cardine angusto, utroque latere violaceo-maculato; fossula minima, angusta, obliqua, dentibus lateralibus lamellosis; valvis intus vivide violaceis in medio pallidioribus; impressione pallii margine inferiore remoto, sinu angusto, brevi, horizontali.*

Hab. —? Coll. Cuming.

2. *MACTRA ATTENUATA*, Desh. *M. testa ovato-trigona, transversa, tenui, turgida, inæquilaterali, transversim irregulariter striatissima, livide violacea, ad umbones atro-violacea, intus pallidior violacea; latere antico brevior, obtuso, superne declivi, latere postico declivi, attenuato; umbonibus brevibus, parum obliquis, approximatis; area elongato-ovata lunulaque tenue striatis; cardine angusto, fossula profunda, dentibus lateralibus lamellosis, prominentibus, antico multo brevior; sinu pallii lato, vix excavato.*

Hab. —? Coll. Cuming.

3. *MACTRA CONTRARIA*. *M. testa ovato-trigona, æquilaterali subsymmetrica, compressiuscula, nitida, transversim obsolete tenuissime striata, utroque latere æqualiter convexiuscula, declivi, latere inferiore valde arcuato, latere antico et postico subangulatis; lunula areaque sulcatis, sulcis lunulæ profundis, inferne convergentibus, rugis brevibus in extremitate antica contrariis; umbonibus minimis, violaceo-tinctis; valvis tenuibus, pallide stramineis, intus violascentibus; cardine angusto, fossula minima, dentibus lateralibus lamellosis, æqualibus; sinu pallii brevi, angusto.*

Hab. —? Coll. Cuming.

4. *MACTRA CORBICULOIDES*, Desh. *M. testa trigona, ventricosiuscula, subæquilaterali, transversim tenue et obsolete striata, griseo-cærulescente, zonulis angustis, violascentibus transversim interrupta; umbonibus tumidis, lævigatis, oppositis, atro-viola-*

ceis; latere antico et postico æqualiter declivibus, antico brevior, obtuso, postico attenuato, acuminato, margine inferiore in medio valde convexo; lunula planulata, tenue et regulariter striata; area angulo obtuso circumscripta, tenue striata; cardine angusto, fossula minima; dentibus lateralibus crassiusculis, brevibus, æqualibus, prominentibus; sinu pallii brevissimo, vix inflexo; valvis intus profunde violaceis.

Hab. Ceylon. Coll. Cuming.

5. *MACTRA CORBULOIDES*, Desh. *M. testa* *M. donaciformi* similima sed multo minore, æquilatera, turgidula, satis solida, alba, lævigata; latere antico obtuso, postico acuminato, angulo decurrente acutiusculo notato; area magna, subplana, lævigata; lunula elongato-lanceolata, angulo obsoletissimo circumscripta; cardine solido, fossula minima angusta, recta, dentibus lateralibus brevibus, tenue perpendiculariter sulcatis; sinu pallii brevissimo, lato, fere semicirculari.

Hab. —? Coll. Cuming.

6. *MACTRA DECORA*, Desh. *M. testa* ovato-transversa, turgida, inæquilaterali, nitida, ex albo et violaceo eleganter radiata et transversim zonata; latere antico paulo brevior, obtuso, transversim tenue et regulariter sulcato, sulcis in medio evanescentibus; umbonibus tumidulis, atro-violaceis, parum distantibus; lunula bicolorata, albo et violaceo regulariter plicata; area concaviuscula, tenue plicata.

Hab. —? Coll. Cuming.

7. *MACTRA DISSIMILIS*, Desh. *M. testa* transversa, ovato-trigona, inæquilaterali, turgidula, nitida, albo-grisea, ad margines rufescente, aliquantisper zonulis transversis, cærulescentibus interrupta, intus rubro-violacea; latere antico paulo brevior, obtuso, superne recto, declivi, latere postico superne convexiusculo, extremitate obtuso; umbonibus brevibus, acutis, postice obtuse angulatis; lunula areaque distinctis, eleganter sulcatis; valvis regulariter transversim tenue sulcatis, sulcis inferne continuis, superne ad umbones et latus posticum evanescentibus.

Hab. Australia (Jukes). Coll. Cuming.

8. *MACTRA HEPATICA*, Desh. *M. testa* transversa, oblique trigona, inæquilaterali, turgidissima, lævigata, nitida, antice solum modo brevi-striata, intus extusque colore hepatica infucata; umbonibus tumidis, apice acutis, nigro-violaceis, distantibus; latere antico brevior, obtuso, superne recto vel concaviusculo, postico obtuse angulato; lunula areaque depressis, ovatis, subæqualibus, tenuiter striatis; cardine angustissimo, fossula parva, obliqua, dente V-formi duabus partibus valde inæqualibus composita, dentibus lateralibus brevibus, angustissimis, antico multo minore; linea pallii margine inferiore proxima; sinu pallii brevi, oblique semicirculari.

Hab. Philippines. Coll. Cuming.

9. **MACTRA INCONGRUA**, Desh. *M. testa ovato-trigona, obliqua, inæquilaterali, turgida, cordiformi, subepidermide squalide flavescente alba, lævigata, transversim substriata, latere antico brevior, declivi, rectilineari, obtuso, postico convexiusculo, subangulato; umbonibus tumidis, acutis, parum obliquis; lunula ovata, planulata, areaque posticali in medio carinulata, tenuiter plicatis; cardine angusto, fossula brevi, angusta, obliqua, dentibus lateralibus compressis, subæqualibus, antico paulo brevior; impressione pallii lata; sinu brevi, obliquo, lato.*

Hab. Luzon, Philippines. Coll. Cuming.

10. **MACTRA INÆQUALIS**, Desh. *M. testa ovato-transversa, sub-trigona, inæquilaterali, compressiuscula, ad marginem inferiorem acutiuscula, polita, nitente, epidermide nitide flavescente vestita; latere antico longior, parum attenuato, obtuso, postico angulato; lunula areaque posticali tenuiter plicatis; umbonibus brevibus, acutis, oppositis; cardine angustissimo; fossula cardinali brevi, angusta, obliqua; dentibus lateralibus compressis, brevibus, in altera valvula duplicatis; valvis intus albo-pallide flavis; sinu pallii angusto, profundo, horizontali.*

Hab. China. Coll. Cuming.

11. **MACTRA INTUSPICTA**, Desh. *M. testa oblique trigona, tenui, turgida, inæquilaterali, transversim obsolete inæqualiter striata, sub epidermide pallide flavescente fusco-grisea, ad umbones cærulescente aliquantisper obscure radiata, intus rube rubro-violacea, radiis pallidioribus, albicantibus picta; latere antico declivi, superne rectilineari, obtuso, postico convexiusculo, inferne obtuse angulato; lunula plana areaque ovatis, subæqualibus, tenue plicatis; cardine angusto, dentibus lateralibus compressis, valde prominentibus; linea pallii margine inferiore proxima, sinu brevi, oblique ascendente.*

Hab. Manilla; China. Coll. Cuming.

12. **MACTRA LUZONICA**, Desh. *M. testa transversim trigona, æquilaterali, subsymmetrica, turgidula, æqualiter utroque latere declivi, nitida, pallide fusca vel albo rufescente, in latere postico castanea, extremitatibus æqualiter obtusis; umbonibus minimis, acutis, apice violaceis; lunula areaque æqualibus, regulariter plicatis, violaceo-maculatis; valvis antice inferneque sulcatis, sulcis irregulariter evanescentibus, intus rubro-violaceis; cardine angusto, fossula angusta, obliqua; dentibus lateralibus lamellosis, æqualibus, prominentibus; sinu pallii angusto, profundiusculo.*

Hab. Luzon, Philippines.

13. **MACTRA MURCHISONI**, Desh. *M. testa ovato-transversa, convexa, solida, subæquilaterali, clausa, albo-grisea, subepidermide pallide straminea, decidua, inæqualiter substriata, latere antico paulo brevior, obtuso, superne declivi, postico subangulato, extremitate parumper acuminato; margine inferiore regu-*

lariter convexo; lunula magna, angulo obtusissimo superne circumscripta, plicata, macula elongata, rufescente notata, plicis latis, abrupte terminatis; area magna, obsolete plicata, angulo obtuso circumdata; umbonibus acutis, brevibus, oppositis; cardine angusto; dente cardinali tenui, brevissimo, sub angulo recto aperto; fossula lata explanata; dentibus lateralibus compressis, longiusculis, æqualibus; sinu pallii brevi, lato, obtuso, subtrigono.

Hab. New Zealand.

14. *MACTRA OPPOSITA*, Desh. *M. testa parvula, transversa, trigona, turgidula, subæquilaterali, transversim obsolete sulcata, grisea, radiis numerosis rufis, pallidis, interruptis picta, intus violaceo transversim zonulata; umbonibus acutis, brevibus, oppositis, apice violaceis; latere antico posticoque æqualiter declivibus, angulo obtuso æqualiter distinctis; lunula areaque planulatis, tenue striatis, macula violacea notatis; cardine angusto; fossula cardinali minima, angusta, dentibus lateralibus compressis, prominentibus, postico brevior; sinu pallii lato, satis profundo, obtuso, superne parum dilatato.*

Hab. Luzon, Philippines. Coll. Cuming.

15. *MACTRA RADIOLATA*, Desh. *M. testa trigona, obliqua, inæquilaterali, turgida, cordiformi, sub epidermide flavescente, tenui alba, intus extusque eleganter rufo-rubescente radiata; latere antico paulo brevior, late rotundato, postico rapide declivi, attenuato; lunula areaque plano-concaviusculis, regulariter striatis; umbonibus tumidis, prominentibus, parum obliquis; cardine crassiusculo, fossula profunda, dentibus lateralibus laminatis, prominentibus, triangularibus; sinu pallii brevi, oblique semicirculari.*

Hab. Zebu, Philippines. Coll. Cuming.

16. *MACTRA SCALPELLUM*, Desh. *M. testa transversa, angusta, late trigona, æquilaterali, subsymmetrica, superne æqualiter declivi, antè tantisper obtusior, utroque latere attenuata, inferne regulariter convexa, albo-cornea, nitidissima, area lunulaque tenue plicatis; cardine in medio dilatato, fossula basi prominente, trigona, lata; dente cardinali parvo, obliquo, dentibus lateralibus lamellosis, antico paulo longior; sinu pallii elongato.*

Hab. New Zealand.

17. *MACTRA SERICEA*, Desh. *M. testa orato-transversa, tumida, tenui, subæquilaterali, postice paulo hiantè, epidermide sericea, tenue striata vestita, lævigata substriatave, latere antico paulo brevior, compressiusculo, rotundato, postico paulo magis attenuato, margine inferiore regulariter arcuato; umbonibus acutis, brevibus, apice violaceis; area planulata, vix convexa, sulcata, lunula æqualiter sulcata, in medio carinata; cardine*

angusto; fossula angusta, obliqua, dentibus lateralibus elongatis, antico basi longe et profunde foveolato; sinu pallii lato, parum profundo, oblique ascendente.

Hab. —? Coll. Cuming.

18. *MACTRA TRANSVERSA*, Desh. *M. testa ovato-oblonga, transversa, angusta, subæquilaterali, solida, compressa, alba, transversim regulariter striato-sulcata, antice declivi, acuminata, postice angulo acuto inferne terminata, oblique truncata, angulo decurrente notata; umbonibus parvis, acutis, oppositis; cardine angusto, fossula basi lata, obliqua, dentibus lateralibus brevibus, angustissimis, parum prominentibus; sinu pallii lato, profundo, obtuso.*

Hab. —? Coll. Cuming.

19. *MACTRA SUBLANCEOLATA*, Desh. *M. testa trigona, depressiuscula, subcuneiformi, inæquilaterali, candida, epidermide tenui, flavicante, tenuissime striata vestita, in medio posticeque lævigata, antice tenue striata; latere antico obtuso, rotundato, superne declivi, postice attenuato, acuminato, postico angulo obtuso, obliquo distincto; area lata, subplana, lunulaque sulcatis, sulcis parum numerosis; cardine angusto, fossula minima, basi non prominente; dentibus lateralibus brevibus, compressis, sulcatis; sinu pallii minimo, angusto, oblique ascendente.*

Hab. —?

20. *MACTRA DOLABRATA*, Desh. *M. testa transversa, trigona, inæquilaterali, tumidula, tenui, fragili, alba, lævigata, obsolete tenuissime et irregulariter striata; latere antico longiore, supero concavo, antice obtuso, postico brevi, declivi, truncato, angulato, extremitate acuminato; umbonibus acutis, obliquis, approximatis, apice involutis; area elongata, in medio excavata; dentibus lateralibus lamellosis, brevibus, triangularibus, acutis; sinu pallii angusto, brevi, oblique ascendente.*

Hab. —? Coll. Cuming.

21. *MACTRA EXPLANATA*, Desh. *M. testa ovato-subtrigona, compressa, lata, tenui, luctea, subæquilaterali, transversim tenue et obsolete striata; latere antico lato, obtuso, paulo brevior, postico valde declivi, attenuato, compresso, hianti; umbonibus minimis, obliquis; lunula elongato-lanceolata, in medio carinata, elevata, area angusta, concava, angulis duobus inæqualibus circumscripta, angulo proximo obtuso, altera lineari; cardine lato, peculiari, fossula magna, profunda, sub lunula, loco ductus lateralis; dente laterali postico lamellosa in valva sinistra, in valva dextra inter duas lamellas oblique commixtas recepto; dente cardinali parvo, fossula ligamenti pyriformi, sinu pallii lato, profundiusculo, obtusissimo.*

Hab. Australia, Swan River. Coll. Cuming.

22. *MACTRA VIRGO*, Desh. *M. testa ovato-trigona, subæquilaterali, crassa, solida, depressiuscula, irregulariter et transversim*

striatissima, incrementi sulcis profundioribus, irregularibus, interrupta, intus extusque candidissima, nitente, utroque latere æqualiter declivi, antice obtusa, postice acuminata, obtuse angulata, umbonibus minimis, acutis, oppositis; lunula areaque lævigatis; cardine crasso, lato, fossula mediana, dente cardinali angusta, obliqua, dentibus lateralibus validis, æqualibus; sinu pallii brevi, lato, obtuso, obliquo.

Hab. Australia, Swan River. Coll. Cuming.

23. *MACTRA CARINULATA*, Desh. *M. testa trigono-transversa, tumida, cordiformi, æquilaterali, sub epidermide squalide fuscescente alba, obsolete irregulariter striata, æqualiter superne declivi et convexiuscula; latere antico obtusiusculo, postico attenuato, angulo paulo prominente, obtuso distincto; lunula indistincta areaque lævigatis; umbonibus angulatis, prominentibus, acutis, obliquis, valde distantibus; cardine solidiusculo, fossula trigona, obliqua, profunda; dentibus lateralibus solidiusculis, simplicibus, elongatis, subæqualibus; sinu pallii angusto, profundo, oblique ascendente.*

Hab. —? Coll. Cuming.

24. *MACTRA ANGUSTA*, Desh. *M. testa ovato-transversa, angusta, subtrigona, subæquilaterali, compressa, alba, tenui, fragili, transversim argute et regulariter striata; latere antico paulo brevior, obtuso, superne concaviusculo, latere postico superne declivi, attenuato; area angusta, elongata, planulata, liris duabus parum divergentibus circumscripta; umbonibus minimis, parum obliquis, regulariter undato-plicatis; lunula minima, lanceolata; cardine in medio lato, fossula lata, trigona, explanata; dentibus lateralibus brevibus, inæqualibus, postico brevior; sinu pallii oblongo, horizontali, apice obtuso.*

Hab. Panama. Coll. Cuming.

25. *MACTRA BILINEATA*, C. B. Adams, MSS. *M. testa ovato-transversa, angusta, depressa, inæquilaterali, translucida, alba, sub epidermide pallide flavicante, tenuissime striata in latere postico fuscescente, latere antico declivi, obtusiusculo, attenuato, postico declivi, latiore, oblique truncato, in truncatura hiant, lineis binis, obliquis, albis, divergentibus distincto; area angusta, plana; lunula indistincta; umbonibus minimis, vix prominentibus, oppositis; cardine lato, fossula magna, lata, basi prominente, dentibus lateralibus brevibus, subæqualibus; sinu pallii magna, lato, profundo, semi-elliptico.*

Hab. Jamaica.

26. *MACTRA BULLATA*, Desh. *M. testa ovato-subrotundata, inflata, inæquilaterali, tenuissima, fragili, membranacea, sub epidermide pallide flavesciente albo-hyalina, antice oblique gibbosa, postice attenuata, late truncata, hiant, latere antico paulo longiore, late rotundato, transversim satis regulariter plicata et*

striata, plicis postice evanescentibus; umbonibus angustis, minimis, acutis, oppositis; cardine brevi, in medio latiore, fossula basi producta, profunda, dente cardinali minimo, subcalloso, dentibus lateralibus nullis; sinu pallii profundo, angusto, a margine remoto.

Hab. —? Coll. Cuming.

27. *MACTRA CALIFORNICA*, Desh. *M. testa transversa, ovato-elliptica, convexiuscula, inæquilaterali, epidermide straminea, nitente vestita, griseo-fuscescente, transversim substriata, antice inter valvulas fissâ, postice hiante; latere antico brevior, obtuso, latiore, postico sensim attenuato, rotundato; cardine angusto; dente cardinali valvæ sinistræ compresso; fossula magna, obliqua, parum profunda, basi prominente; dente laterali postico angustissimo, elongato, obliquissimo, laterali antice brevi, parum obliquo, cardine approximato; sinu pallii lato profundoque, horizontali, subspathulato.*

Hab. Gulf of California. Coll. Cuming.

28. *MACTRA EGENA*, Desh. *M. testa ovato-transversa, compressa, inæquilaterali, candidissima, incrementi irregulariter striata; latere antico brevi, angustato, obtuse attenuato, superne declivi; latere postico latiore, obtuso; area angustissima, profunda, angulo obtuso, irregulariter plicato circumscripta; lunula lanceolata, impressa, ad peripheriam tenue plicata; umbonibus parvis, rix obliquis; cardine in medio lato, fossula magna, subæquilaterali, basi prominente, dente cardinali compresso, dentibus lateralibus brevibus, subæqualibus, angustis, prominentibus, sinu pallii profundo, lato, digitiformi, dimidiam partem valvarum attingente.*

Hab. —? Coll. Cuming.

29. *MACTRA HIAINTINA*, Desh. *M. testa ovato-transversa, trigona, depressiuscula, inæquilaterali, epidermide squalide fuscescente vestita, alba, transversim irregulariter denseque striata; latere antico brevi, valde declivi, attenuato, paululum obtuso, subclauso, postico superne declivi, latiore, truncato, late hiante, linea elevata, oblique decurrente separato; area elongata, in medio canaliculata, angulo angusto distincta; lunula elongata, angusta, depressa; cardine in medio lato, prominente, fossula magna; dentibus lateralibus brevibus, lamellosis; sinu pallii maximo, linguiformi.*

Hab. Puna, Guayaquil.

30. *MACTRA PELLICULA*, Desh. *M. testa ovato-transversa, tenuissima, alba, hyalina, subæquilaterali, antice oblique gibbosa, latere antico paulo longiore, late rotundato, latere postico attenuato, cuneiformi, subtruncato, hiante, plicis striisque irregularibus notata; umbonibus minimis, acutis, parum obliquis et prominentibus, lunula areaque nullis; cardine angustissimo, dente cardinali minimo, in valva dextra fere nullo, fossula mi-*

nima, basi parum prominente, dentibus lateralibus vix perspicuis; sinu pallii profundo, horizontali, obtuso.

Hab. Japan. Coll. Cuming.

31. *MACTRA PLICATILIS*, Desh. *M. testa transversa, oblonga, ovata, angusta, inæquilaterali, compressiuscula, tenui, fragili, hyalina, transversim plicata, plicis prominentibus, elevatis, regularibus, antice parum obliquis; latere antico paulo brevior, rotundato, postico hiante, paululum angustiore, oblique carinato; area angustissima, plana, lævigata, angulo obtuso circumdata, lunula inconspicua; cardine angusto; dente cardinali satis magno, lateralibus lamellosis, brevibus, prominentibus, triangularibus, acutis; sinu pallii profundo, lato, subtrigono, apice obtuso.*

Hab. — ? Coll. Cuming.

32. *MACTRA ROSTRALIS*, Desh. *M. testa ovato-transversa turghida, tenui, hyalino-vitrea, inæquilaterali, transversim plicata, plicis regularibus, antice prominentioribus, transversim tenuissime striatis; latere antico paulo longiore, late obtuso, postico declivi, hiante, attenuato, subrostrato; cardine angustissimo, dente cardinali compresso, fossula minima, dentibus lateralibus brevissimis, angustis, cardine approximatis; lunula impressa, plana, ovata.*

Hab. Japan. Coll. Cuming.

33. *MACTRA SILICULA*, Desh. *M. testa ovato-transversa, compressiuscula, subæquilaterali, postice hiante, candidissima, epidermide pallide flavicante, sericea vestita; latere antico obtuso, superne concaviusculo, postico superne convexiusculo, extremitate parumper attenuato; area posticali angusta, in medio concaviuscula, epidermide fusciscente, irregulariter plicata induta, linea elevata circumscripta; lunula inconspicua; valvis extus argutissime transversim striatis; umbonibus parvis, parum obliquis, politis; cardine in medio lato, fossula magna, dentibus lateralibus parvis, brevibus, lamellosis, acutis.*

Hab. Luzon, Philippines. Coll. Cuming.

34. *MACTRA CAPILLACEA*, Desh. *M. testa transversa, ovato-cuneiformi, valde inæquilaterali, tenui, candida, sub epidermide tenui, decidua, straminea, lineis capillaceis, longitudinalibus, parum prominentibus, numerosis, approximatis, irregularibus, inter se confluentibus, sæpe interruptis reticulatim intricatis; latere antico brevissimo, obtusissimo, semicirculari, postico sensim attenuato, hiante, superne declivi, rectilineo; cardine angustissimo, dente cardinali magno, fossula angusta, postice obliquata; dentibus lateralibus parvulis, postico longiore; sinu pallii profundissimo, lato, marginibus fere parallelis.*

Hab. Philippines; mouth of the Indus. Coll. Cuming.

35. *MACTRA TRISTIS*, Desh. *M. testa ovata, transversa, compressa, tenui, inæquilaterali, utroque latere hiante, epidermide*

squalide fusciscente ad margines induta, transversim irregulariter et dense striata, squalide grisea, ferrugineo in medio infuscuta, intus albo, squalide rufescente; latere antico brevi, rotundato, postico duplo longiore, æqualiter obtuso; area lunulaque nullis; umbonibus depressis, minimis, approximatis, vix obliquis; fossula cardinali lata, trigona, basi producta; dentibus lateralibus minimis, brevibus, antico brevissimo, cardine adnato; sinu pallii magno, obtuso, basi dilatato.

Hab. Australia, Moreton Bay.

36. *MACTRA GONIATA*, Gray, MSS. B. M. *M. testa transversa, trigona, æquilaterali, tumida, cordiformi, epidermide tenui, flavida, antice posticeque squamosa vestita, alba, irregulariter transversim tenue striata; latere antico superne plano, in medio obtuso, postico angulato, abrupte truncato; area ingentissima, planulata, angulo postico circumscripta, lævigata; umbonibus tumidis, acutis, vix obliquis, valde distantibus; cardine solido, fossula profunda, basi prominente; dentibus lateralibus brevibus, compressis, triangularibus, valde elatis; sinu pallii angusto, profundo, digitiformi.*

Hab. California.

37. *MACTRA ANGULIFERA*, Desh. *M. testa ovato-trigona, transversa, compressa, utroque latere hiant, subæquilaterali, candida, nitida, transversim obsolete et irregulariter striata, latere antico brevior, obtuso, superne concaviusculo, postico declivi, brevi, truncato, angulo acuto, angusto, oblique decurrente notato; umbonibus brevibus, depressis, obliquis, tenue et regulariter plicatis; lunula ovata, lævigata, concaviuscula, area angusta, concava; cardine in medio lato; fossula explanata, ovato-trigona, dentibus lateralibus elongatis, tenuibus, acutis, dente cardinali brevi, angusto, sinu pallii lato, profundo.*

Hab. Ticao, Philippines. Coll. Cuming.

38. *LUTRARIA IMPAR*, Desh. *L. testa elongato-transversa, angusta, inæquilaterali, convexiuscula, tenui, alba, antice profunde et regulariter transversim plicata, plicis in medio evanidis, latere postico irregulariter striato, undulato; latere antico brevior, paulo latior, postico paululum attenuato; extremitatibus æqualiter obtusis; margine inferiore recto, superiore fere paralielo, margine dorsali postico canaliculato; dente cardinali prominente, dente laterali postico brevi, lamelliformi, cardine adnato; sinu pallii profundissimo, usque ad latus anticum attingente, margine superiore oblique declivi, inferiore horizontali.*

Hab. Moreton Bay, Australia. Coll. Cuming.

39. *LUTRARIA ARCUATA*, Desh. *L. testa elongato-transversa, valde inæquilaterali, arcuata, solida, convexiuscula, antice posticeque valde hiant, epidermide flavescens, tenui, lucido, posteriorius saturatiore vestita, omnino alba, transversim tenue et satis regulariter striata; latere antico brevi, paululum attenuato;*

fossula cardinali oblonga, postice obliquata; dente cardinali angusto; sinu pallii magno, lato, extremitate late obtuso, marginibus subparallelis, superiore parumper declivi.

Hab. Luzon, Philippines. Coll. Cuming.

40. LUTRARIA AUSTRALIS, Desh. *L. testa transversim ovata, breviuscula, lata, inæquilaterali, arcuata, postice late hiante, omnino alba, sub epidermide fuscescente, nitida, postice fusca, transversim irregulariter striata, postice obtuse undulata; latere antico paululum attenuato, hiante, postico rotundato; dente cardinali compresso, brevi, fossula magna, parum obliqua basi valde prominente; sinu pallii magno, ad marginem inferiorem obliquato, apice lato et oblique subtruncato; margine superiore antice posticeque canaliculato.*

Hab. New Holland. Coll. Cuming.

41. LUTRARIA PHILIPPINARUM, Desh. *L. testa magna, elongato-transversa, valde inæquilaterali, crassa, solida, convexa, postice hiantissima, sub epidermide fuscescente alba, transversim, præcipue antice, striato-rugosa; latere postico angulo obtusissimo, obliquo separato, latere antico brevi, attenuato; margine dorsali superiore concaviusculo, inferiore convexiusculo; dente cardinali parvo, fossula magna, excavata, postice obliquata; sinu pallii profundo, basi paulo latiore, apice lato, subtruncato.*

Hab. Philippines. Coll. Cuming.

42. LUTRARIA CURTA, Desh. *L. testa ovato-transversa, brevi, satis lata, convexiuscula, inæquilaterali, alba, rudi, postice irregulariter striato-subplicata, utroque latere et præcipue postice hiante; latere antico brevi, regulariter obtuso, postico angustiore, subtruncato; margine superiore postico concaviusculo, inferiore convexo; dente cardinali parvo, angusto, fossula parum obliqua, dilatata; sinu pallii lato, profundo, parum inferne obliquato, marginibus parallelis, extremitate late obtuso, semicirculari.*

Hab. —? Coll. Cuming.

43. LUTRARIA SIEBOLDII, Desh. *L. testa regulariter ovato-transversa, longe elliptica, compressa, tenui, inæquilaterali, utroque latere hiante, præcipue postice, epidermide decidua squalide fusca ad margines vestita, alba, transversim irregulariter striata et obsolete undulata; margine anteriore brevi, rotundato, postico obtuso; dente cardinali parvo, compresso, fossula postice obliquata, late trigona; sinu pallii inferne obliquato, lato, profundo, subtriangulati, basi dilatato, apice angustiore, obtuso, margine superiore declivi.*

Hab. Japan. Coll. Cuming.

44. LUTRARIA INTERMEDIA, Desh. *L. testa ovato-transversa, rugosiuscula, inæquilaterali, crassa, solida, antice posticeque valde hiante, convexiuscula, alba, sub epidermide fuscescente,*

postice irregulariter plicata, transversim striato-rugosa, postice obscure plicata vel undulata; latere antico multo brevior, superne declivi, in medio attenuato, ventrali dilatato, postico superne parumper concavo, oblique truncato, hiantissimo; umbonibus parvulis, vix prominentibus; dente cardinali in valva sinistra magno, aperto, in dextra compresso; fossula magna, profunda, valde postice obliquata, basi prominente; sinu pallii maximo, fere tam profundo quam lato, obtuso, subtruncato.

Hab. Madagascar.

45. *LUTRARIA DISSIMILIS*, Desh. *L. testa ovato-transversa, convexiuscula, valde inæquilaterali, rugosula, epidermide squalide fusca vestita, rudi, postice tenue irregulariter plicata; latere antico brevi, obtuso, hiant, paululum attenuato, superne declivi; latere postico obtuso, valde hiant; margine superiore inferiori parallelo; dente cardinali in valva sinistra angusta, compressa; fossula obliqua, parum excavata; sinu pallii magno, profundissimo, obtuso, parumper ad marginem inferiorem declivi.*

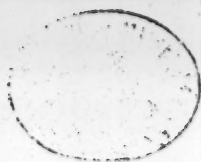
Hab. Australia. Coll. Cuming.

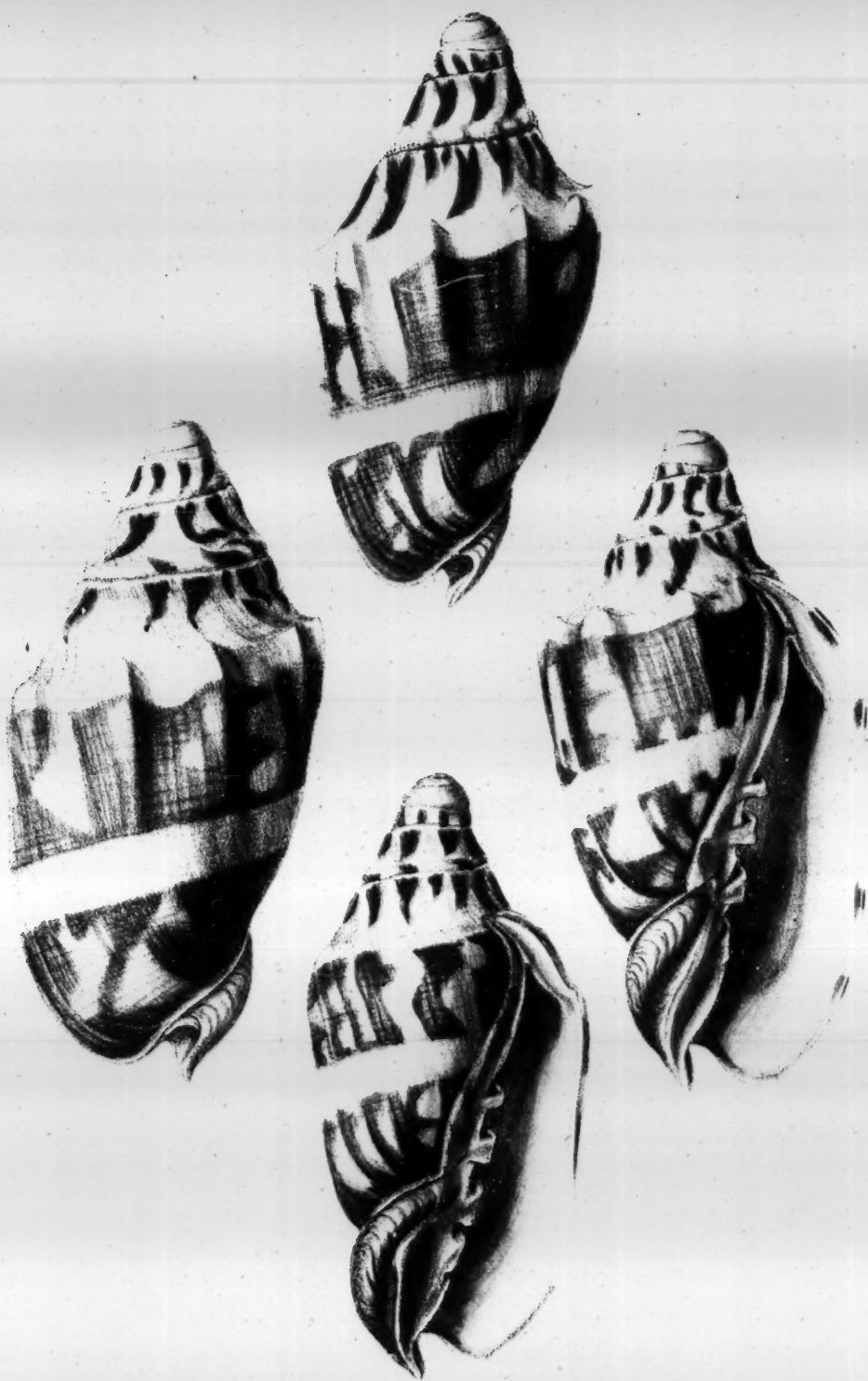
46. *ZENATIA SOLENOIDES*, Desh. *Z. testa oblongo-transversa, compressa, valde inæquilaterali, rufo-albicante, sub epidermide fuscescente, postice irregulariter plicato, transversim irregulariter striata; latere antico brevissimo, regulariter semicirculari, latere postico oblique obtuso, late hiant; margine superiore concaviusculo, inferiore fere parallelo; cardine brevi, dente cardinali V-formi, magno, fossula perobliqua, trigona, explanata, oblique prominente; sinu pallii profundo, trigono, apice obtuso, basi lato, oblique ad marginem inferiorem declivi.*

Hab. New Zealand. Coll. Cuming.

47. *ZENATIA CUMINGIANA*, Desh. *Z. testa oblongo-transversa, tenui, subpellucida, valde inæquilaterali, depressa, utroque latere hiant, sub epidermide tenui, nitida, alba, transversim obsolete striata; latere antico brevissimo, oblique rotundato, postico obtuso, rotundato; margine superiore concavo, inferiore convexo, parallelo; cardine angusto, brevi, fossula cardinali parva, perobliqua, plana; sinu pallii magno, trigono, inferne valde declivi.*

Hab. New Zealand. Coll. Cuming.





February 28, 1854.

Dr. Gray, Vice-President, in the Chair.

The following papers were read :—

1. DESCRIPTION OF A NEW VOLUTE, FROM NEW CALEDONIA.
By LOVELL REEVE.

(Mollusca, Pl. XXVI.)

VOLUTA DESHAYESII. *Vol. testa ovato-oblonga, basin versus contracta et retrorsum contorta, pallide carneo-alba, fasciis duabus latissimis, miniaceo-roseo marmoratis cingulata, epidermide tenui, fugacea induta; spira breviuscula, maculis grandibus, vivide miniaceo-roseis ornata, apice perampliter obtuse papillata, flavescente; anfractibus superne leviter concavis, ultimo sæpissime angulato, ad angulum tuberculato, tuberculis subdescendentibus; columella quadriplicata, plicis fortissimis, subquadratis, transversis; apertura subcontracta, aurantio-carneola.*

Long. $3\frac{1}{2}$ poll., lat. $1\frac{1}{2}$ poll.

Hab. New Caledonia.

This delicately painted Volute, of which three specimens, in fine condition, containing portions of the animal dried within them, have just been received from New Caledonia, approaches nearest in colouring and general aspect to *V. aulica*. It differs from that species in being twisted and recurved at the base, and in having columellar plaits of a different typical character, more like those of *V. Hebixa* or *musica*. The general contour of the shell is, however, more like that of *V. vespertilio*. The colouring consists of two broad variously mottled vermilion red bands, with the base of the same colour, whilst the spire is painted with large very characteristic vermilion-rose spots of a deeper tone. The apex is largely papillary, not flesh-tinted as in *V. aulica*, but pale yellow. The columella and interior of the aperture are of a warm orange carnelian hue.

Being honoured at this time with a visit from M. Deshayes, I have the pleasure of distinguishing this beautiful Volute with his name.

2. DESCRIPTIONS OF SOME NEW AND LITTLE-KNOWN SPECIES OF BIRDS FROM NORTHERN INDIA, CONTAINED IN THE MUSEUM OF THE HON. EAST INDIA COMPANY. BY FREDERIC MOORE, ASSIST. HON. COMP. MUSEUM.

(Aves, Pl. LXII.)

Fam. MERULIDÆ, Vigors.

Subfam. MYIOTHERINA, Swains.

Genus PNOËPYGA, Hodgs.

Syn. *Microura*, Gould (nec Ehrenb.).

1. PNOËPYGA LONGICAUDATA, nobis.

Colour of the upper parts deep olive-brown, the feathers slightly margined with black, and having blackish shafts; wings and tail inclined to ferruginous brown; upper tail-coverts long; throat whitish; breast and sides of abdomen pale dusky ferruginous, the feathers having pale centres and blackish margins; centre of lower part of breast and abdomen white; flanks the same as the back; vent and under tail-coverts dark ferruginous; bill dark horn colour, legs paler.

Length, $4\frac{1}{2}$ inches; of wing, 2; the tail is rounded, the central feathers being $2\frac{1}{4}$ inches long, and the outer $1\frac{1}{2}$ inch; bill to front, through the feathers, $\frac{1}{2}$ inch; to gape, $\frac{6}{10}$; tarse, $\frac{9}{10}$.

Hab. N. India.

Genus BRACHYPTERYX, Horsfield, p. s. d.

2. BRACHYPTERYX NIPALENSIS, Hodgson.

Male: colour above a greyish cyaneous, or light greyish blue, as are also the cheeks, sides of breast and flanks, and paling to greyish white on the centre of the breast; throat, middle of belly, vent and under tail-coverts, streak over but not extending beyond the eye, white. Female: ferruginous brown above, paling on the sides; throat, breast, belly, under tail-coverts and streak over the eye, whitish, the feathers on the breast and sides fringed with brown; bill dark horn colour, legs paler.

Length, $4\frac{1}{4}$ inches; of wing, $2\frac{1}{2}$; tail, $1\frac{3}{8}$; bill to gape, $\frac{6}{8}$; tarse, 1.

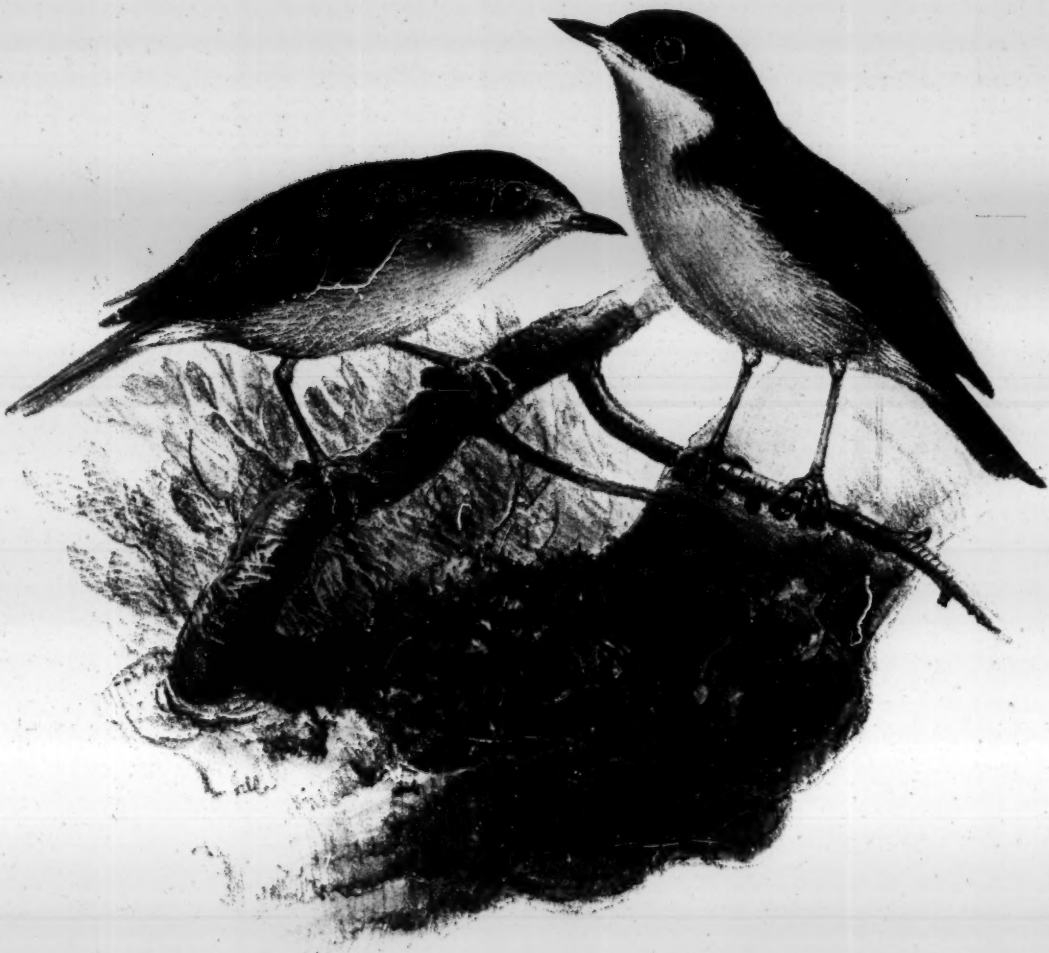
Hab. Nepal (No. 943, *Hodgs. Catal.*).

This species is allied to *Br. cruralis*, Blyth, but may readily be distinguished by its smaller size, shorter tail, paler colour of the upper parts, and by its white throat and belly.

Genus CALLENE, Blyth, Journ. A. S. Beng. p. 136 (1847).

Syn. *Cinclidium*, Blyth (nec Gould).

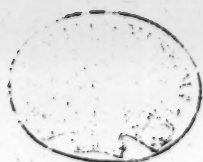
Gen. Char. "Bill shorter than the head, straight, slender, higher than broad, the ridge of the upper mandible tolerably acute, and its tip very slightly emarginated; inferior gonyes ascending for the terminal half, imparting to the bill the appearance of a tendency to bend



J. Wolf, del.

M & N Hawhart, imp.

NEMURA HODGSONI Moore.
Male & Female.



upward: narial apertures in the form of elongate-oval fissures in the lateral nasal membrane, and partially impended by the short semi-reflected frontal feathers; gape armed with a few small setæ; wings and tail rounded, the 4th, 5th and 6th primaries equal and longest; legs and toes slender, the tarsi smooth, unscutellate, and very long, as is also the middle toe; claws but moderately curved, and of little more than mean length; plumage light, soft and full, having a scale-like appearance on the crown, breast and belly."

3. *CALLENE FRONTALE*, Blyth.

Syn. *Cinclidium frontale*, Blyth, Journ. A. S. Beng. xi. p. 181, xii. p. 954. t. p. 1010. Bonap. C. G. Av. p. 301.

Callene frontale, Blyth, Journ. A. S. Beng. xvi. p. 136; Catal. B. Mus. A. S. Beng. p. 178.

Ruticilla frontalis, G. R. Gray, Gen. of Birds, i. p. 180.

Brachypteryx scapularis, Horsf. MS.

Hab. Nepal (No. 950, *Hodgs. Catal.*).

Spec. Char. "Plumage dark fusco-cyaneous, the rump dusky; flanks somewhat ashy, and middle of the belly slightly grey-edged; lores and immediately above the beak blackish, contrasting with a bright cærulean forehead; bend of the wing also cærulean, but less bright; and winglet, primaries and their coverts, secondaries and tertiaries, dark olive-brown; a white spot on the under surface of the wing, beneath the winglet; bill black; legs dusky brown.

"Length, $7\frac{5}{8}$ inches; of wing from bend, $3\frac{3}{8}$; middle tail-feathers, $3\frac{1}{2}$, the outermost $\frac{3}{4}$ of an inch shorter; bill to forehead nearly $\frac{5}{8}$, to gape $1\frac{3}{8}$; tarse, $1\frac{3}{8}$; middle toe and claw, $1\frac{3}{16}$; hind toe and claw, $\frac{3}{4}$; the last, $\frac{3}{8}$.

"This bird is reported to be a fine songster, and heard chiefly in the evening."—*Blyth*.

Subfam. TIMALINA.

Genus TRICHASTOMA, Blyth.

Syn. *Malacocincla*, Blyth.

Gen. Char. "Bill as long as the head, rather stout, high, much compressed, the tip of the upper mandible pretty strongly hooked, but indistinctly emarginated, and its ridge obtusely angulated towards the base, the remainder scarcely angulated; gape but little widened, and feebly bristled; nostrils large and subovate, with oval aperture to the front, a little removed from the base of the bill; tarse of mean length and strength, as long as the middle toe with its claw; the claws suited for perching, compressed, and moderately curved, that of the hind toe rather large; wings moderate, with the first primary reaching to about their middle, the second much shorter than the third, and the fourth longest; tail rather short, weak and even, except that its outermost feathers are a little shorter than the rest; plumage full and lax, the coronal feathers somewhat elongated and of a spatulate form."

4. *TRICHASTOMA ABBOTTI*, Blyth.

Syn. *Malacocincla Abbotti*, Blyth, Journ. A. S. Beng. xiv. p. 601 (1845).

Trichastoma Abbotti, Blyth, J. A. S. Beng. xvi. p. 462; Catal. B. Mus. A. S. Beng. p. 147. Bonap. C. G. Av. p. 259.

Malacopteron Abbotti, G. R. Gray, Gen. of Birds, iii. App. p. 9.

Hab. Arracan (No. 919, *Hodgs. Catal.*).

Spec. Char. "Colour above plain olive-brown, tinged with rufous on the rump and tail; the upper tail-coverts ferruginous brown, under parts paler; the throat and middle of the belly white; the ear-coverts, sides of the breast and flanks rufescent; the lower tail-coverts weak ferruginous; bill horn-colour, paler beneath.

"Length, 6 inches; of wing, 3; tail, $2\frac{1}{8}$; bill to gape, $1\frac{1}{2}$; and tarse the same."—*Blyth*.

Mr. Blyth states Arracan to be the habitat of this bird. Specimens have lately been presented to the Company's Museum by B. H. Hodgson, Esq., from Nepal, and by Capt. R. C. Tytler from Dacca.

Fam. SYLVIADÆ, Vigers.

Subfam. SAXICOLINA, Vigers.

Genus NEMURA, Hodgson.

Syn. *Ianthia*, Blyth.

5. *NEMURA HODGSONI*, nobis. (Pl. LXII.)

Male: colour of the upper parts purplish blue, brightening to vivid ultramarine on the crown; forehead, lores and sides of head, wings and tail black, the two latter margined with blue externally; on the rump some of the feathers are tipped with white; upper tail-coverts blue; lower parts yellowish ferruginous; under wing-coverts, flanks and under tail-coverts white. Female: ferruginous brown, richer on the rump; wings and tail dusky, margined with ferruginous brown externally; lores, ear-coverts and under parts pale dusky ferruginous; under tail-coverts white; bill black; legs pale horn colour.

Length, $3\frac{3}{8}$ ths of an inch; wing, $3\frac{7}{8}$; tail, $1\frac{1}{4}$; bill to front, $\frac{3}{8}$; to gape, $\frac{3\frac{1}{2}}{8}$; tarse, $\frac{1}{2}$ an inch.

Hab. Nepal (No. 949, *Hodgs. Catal.*).

Subfam. PHILOMELINA, Swains.

Genus TARSIGER, Hodgson.

6. *TARSIGER SUPERCILIARIS*, Hodgson.

Male: above deep cyaneous; wings brown, margined with cyaneous and rufous on the shoulder, primaries also margined with rufous, secondaries with cyaneous; tail brown, margined with cyaneous; a white superciliary streak extending one inch and a half from the nares to the back of the neck; lores and cheeks black; beneath rufous;

centre of belly white. Female: olive-brown above; wings and tail brown, margined with rusty olive; superciliary streak not so clear as in the male; beneath pale dull rufous; centre of belly and shafts of the underside of tail white; bill black; legs horn colour.

Length, $5\frac{1}{2}$ inches; of wing, $3\frac{2}{8}$; tail, $2\frac{5}{8}$; bill to gape, $\frac{5}{8}$; tarse, $1\frac{1}{8}$.

Hab. Nepal (No. 924, *Hodgs. Catal.*).

Subfam. SYLVIANA, Vigors.

Genus PRINIA, Horsfield, p. s. d.

7. PRINIA CINEREOCAPILLA, Hodgson.

Crown of the head grey, the shaft and margin of the feathers being darker; nareal and frontal plumes, a streak over and beyond the eye, and the whole under parts rufescent, brightest on the flanks and thighs; lores and upper part of ear-coverts greyish; nape, back, rump and wings bright rufous brown, the tips of the latter dusky; tail the same colour as the back, paler beneath, with a terminal dusky band and rufescent white tips; bill black; legs pale horn colour.

Length, $4\frac{1}{4}$ inches; wing, $1\frac{5}{12}$; tail, 2; bill to front, $\frac{3}{8}$; to gape, $\frac{5}{8}$; tarsus, $\frac{3}{4}$; middle toe and claw, $\frac{7}{12}$; hind ditto, $\frac{6}{12}$.

Hab. Nepal (No. 890*, *Hodgs. Catal.*).

Genus SUYA, Hodgson.

8. SUYA ATROGULARIS, nobis.

Colour above dusky brown, in some specimens ashy brown; edge of wing at shoulder and under wing-coverts buff; primaries margined with buffish and secondaries with rufescent brown; a whitish streak extending from the base of the lower mandible to the end and under the ear-covert; chin, throat, side of neck, breast and centre of abdomen black, the feathers of the two latter broadly centred with white; flanks and sides of abdomen mixed grey, brown and rufescent; vent buff; thighs buffy rufous; tail paler than the back, and has no perceptible terminal band; bill horn colour, feet paler.

Length, $6\frac{1}{2}$ inches, including the tail; wings, from $1\frac{3}{4}$ to 2 inches in some specimens; central feathers of tail from $3\frac{1}{2}$ to 4, its outermost being only 1 inch; bill to gape, $\frac{5}{12}$; to front, $\frac{5}{12}$; height from chin to front, $\frac{1}{10}$; width at chin, $\frac{2}{10}$; tarsi, $\frac{7}{8}$.

Hab. Darjeeling; Nepal (No. 893, *Hodgs. Catal.*).

A single specimen of this beautiful bird has been in the Museum of the East India Company for a number of years, collected in Darjeeling by F. T. Pearson, Esq.; and B. H. Hodgson, Esq., has brought home several examples from Nepal.

Genus DRYMOICA, Swains. p. s. d.

9. DRYMOICA NIPAENSIS, Hodgson.

Above rufous brown; wings dusky brown, the primaries exteriorly and secondaries interiorly and exteriorly margined with bright rufous

brown; tail rufous brown, paler beneath, and distinctly rayed, has a terminal dusky band, the tips being pale but not white; the whole under parts rufescent, as in *Prinia socialis*, Sykes; bill dusky horn colour, paler below at base; legs pale horn colour.

Length, $4\frac{1}{2}$ to 5 inches; wing, $1\frac{10}{12}$; tail varying from $2\frac{1}{2}$ to 3; bill to front, $\frac{4}{12}$; to gape, $\frac{7}{12}$; tarsi, $\frac{10}{12}$; middle toe and claw, $\frac{8}{12}$; hind ditto, $\frac{7}{12}$.

Hab. Nepal (No. 913, *Hodgs. Catal.*).

3. NOTICE OF THE SPECIES OF THE GENUS ORTHOTOMUS OF HORSFIELD, WITH DESCRIPTIONS OF A NEW SPECIES, AND OF THOSE HITHERTO KNOWN. BY FREDERIC MOORE, ASSIST. MUS. EAST INDIA COMPANY.

Fam. SYLVIADÆ, Vigors.

Subfam. SYLVIANA, Vigors.

Genus ORTHOTOMUS, Horsfield.

Syn. *Edela*, Lesson.—*Sutoria*, Nicholson.

1. ORTHOTOMUS SEPIUM, Horsfield.

Syn. *Orthotomus sepium*, Horsf. Trans. Linn. Soc. xiii. p. 166 (1820). Lath. Hist. iv. p. 265. Temm. Pl. Col. 599. f. 1. G. R. Gray, Gen. of Birds, i. p. 162. Blyth, Catal. B. Mus. A. S. Beng. p. 145. Bonap. C. G. Av. p. 282.

The Chiglet Creeper, Lath.

Chiglet of the Javanese, Horsf.

Hab. Java.

O. sepium.—The forehead, lores, over the eyes and ear-coverts, ear-coverts themselves, base of lower mandible and chin ferruginous, palest on the sides and chin; top of head, back and tail brownish olive, having a greenish tinge; wings dusky, broadly margined with brownish olive; throat and breast ashy black, the rest of the under parts yellowish; tail with a terminal dusky band, tipped with yellowish; thighs ferruginous; bill brownish, paler below; legs pale.

Length, $4\frac{1}{2}$ inches; of wing, $1\frac{8}{10}$; tail, $1\frac{3}{4}$; bill to gape, $\frac{7}{16}$; tarsus, $\frac{3}{4}$.

The above description is taken from Dr. Horsfield's typical specimens, contained in the Mus. East India Company.

2. ORTHOTOMUS ATROGULARIS, Temminck.

Syn. *Orthotomus atrogularis*, Temm. Pl. Col. Texte, 599 (1836). G. R. Gray, Gen. of Birds, i. p. 162. Bonap. C. G. Av. p. 282.

Hab. Malacca; Borneo.

O. atrogularis.—"The forehead, top of the head and occiput bright brownish red; the neck, the back and the wings of a grassy

green; the tail of a yellowish green, marked near the end and on the inner web with a narrow yellowish band; the chin, throat, breast and upper parts of flanks pure black, the sides of the abdomen yellowish; middle of the belly and abdomen white; bill and feet brown. No difference in the sexes.

"Length, $3\frac{1}{2}$ inches."—*Temm.*

3. *ORTHOTOMUS FLAVOVIRIDIS*, nobis.

The forehead, crown, round the eyes, and occiput ferruginous; back and rump yellowish green; tail more dusky green; wings brown, broadly margined exteriorly throughout with yellowish green; chin, base of lower mandible, ear-coverts, centre of some of the feathers of the throat and breast white; lower part of the breast ash and white; centre of abdomen white; throat and fore part of the breast black, centred as above; flanks yellowish; extreme edge of shoulder of wing yellow; under part of tail yellowish, with a terminal dusky band, tipped with yellowish; thighs greenish ferruginous. Specimens labelled "male."

Length, 4 inches; of wing, $1\frac{3}{4}$; tail, $1\frac{1}{2}$; bill to gape, $\frac{7}{10}$; tarsus, $\frac{7}{10}$.

Hab. Malacca. In Mus. East India Company.

4. *ORTHOTOMUS EDELA*, Temminck.

Syn. *Orthotomus edela*, Temm. Pl. Col. 599. f. 2 (1836). G. R. Gray, Gen. of Birds, i. p. 162. Blyth, Catal. B. Mus. A. S. Beng. p. 144. Bonap. C. G. Av. p. 282.

Motacilla sepium, Raffles, Trans. Linn. Soc. xiii. p. 313. Lath. Hist. vii. p. 218 (nec Horsf. v. Lafres.).

Edela ruficeps, Less. Cent. Zool. p. 212. t. 71 (1834) (nec Less. Tr. d'Orn.).

Kachichi of the Malays of Sumatra, Raffles.

Hab. Malayan peninsula; Sumatra. In Mus. East India Company.

O. edela.—"The forehead, lores and crown ferruginous; the entire lower parts whitish, but the sides of the neck slightly variegated with clear ashy; back of neck, back, wing-coverts and tail greenish; the wings ashy, but bordered with greenish ferruginous; the tail is regularly of one colour; the bill and feet brownish."—*Temm.*

Length, $4\frac{1}{4}$ inches; of wing, $1\frac{3}{4}$; tail, $1\frac{1}{2}$; bill to gape, $\frac{3}{4}$; tarsus, $\frac{5}{8}$.

5. *ORTHOTOMUS RUFICEPS*, Lesson.

Syn. *Edela ruficeps*, Less. Tr. d'Ornith. p. 309 (1831) (nec Less. Cent. Zool.).

Orthotomus sericeus, Temm. Pl. Col. Texte, 599 (1836). G. R. Gray, Gen. of Birds, i. p. 162. Bonap. C. G. Av. p. 282.

Hab. Malacca; Borneo.

O. ruficeps.—"The forehead, crown, occiput, lores and upper part of ear-coverts bright ferruginous; the chin, base of lower mandible, lower part of ear-coverts and the rest of the under parts silky white;

back, rump and wings deep ash; tail bright ferruginous, at base ashy, and with no terminal band; thighs ferruginous; bill yellowish brown, pale below; legs pale.

Length, $4\frac{1}{2}$ inches; wing, 2; tail, $1\frac{3}{4}$; bill to gape, $\frac{7}{8}$; tarsus, $\frac{8}{10}$.

The above description is from a specimen in the East India Company's Museum. This species may readily be distinguished by the bright ferruginous colour of the head, the tail also being of the same colour, and by the bill being considerably longer and stouter (though strictly typical) than in any of the other known species.

6. ORTHOTOMUS CINERACEUS, Blyth.

Syn. *Orthotomus cineraceus*, Blyth, Journ. A. S. Beng. xiv. p. 589 (1845); Catal. B. Mus. A. S. Beng. p. 144. Bonap. C. G. Av. p. 282.

Orthotomus sepium, Lafres. Mag. de Zool. 1836, t. 51 (nec Horsf. v. Raffles).

Hab. Malacca.

O. cineraceus.—"Upper parts pure ash-grey, without any tinge of green; forehead and sides of the head light ferruginous, palest on the cheeks, and there is a slight tinge of the same upon the chin; crown tinged with olive-brown; lower parts white, passing to light ash on the sides of the breast; tail somewhat brownish, with terminal dusky band, and whitish extreme tips to its outer feathers; tibial plumes rust-coloured; the tarsi and toes red-brown; bill dusky above, pale beneath.

"Length about $4\frac{1}{2}$ inches; of wing, $1\frac{8}{10}$; tail, $1\frac{5}{8}$; bill to gape, $\frac{3}{4}$; tarse, $\frac{5}{8}$."—*Blyth*.

A specimen in the East India Company's Museum, from Malacca, has the centre of the throat and the whole of the breast and flanks lightish ash, paling to silky white on the centre of the belly; the under tail-coverts are also white; wings brown, the primaries margined exteriorly with pale dusky ferruginous, the secondaries with ashy olive; extreme edge of wing, under spurious wing-coverts and exterior margin of the latter ferruginous white, contrasting with the ash on the breast; under wing-coverts white. The wing and tarsus are both an eighth of an inch longer. Other characters as in the description above.

7. ORTHOTOMUS LONGIROSTRIS, Swainson.

Syn. *Orthotomus longirostris*, Swains. 2 $\frac{1}{4}$ Cent. p. 343 (1837); Classif. Birds, ii. p. 62. f. 135. G. R. Gray, Gen. of Birds, i. p. 162. Bonap. C. G. Av. p. 282.

Hab. S.W. Australia (*Swains.*). Malacca?

O. longirostris.—"Cinereous; sides of the body beneath cinereous, the middle white; head, chin and thighs ferruginous; throat black; tail brownish, graduated, the latter with dusky black ends, tipped with whitish; bill and legs pale.

"Length, $4\frac{1}{2}$ inches; wing, $2\frac{1}{10}$; tail, beyond 1; base, $1\frac{4}{10}$; bill to gape, $\frac{8}{10}$; tarsus, $\frac{9}{10}$."—*Swains.*

This species differs from *O. cineraceus* in having a black throat, and in the wing being three-tenths of an inch longer, the tarsus also being longer by a quarter of an inch. Mr. Swainson has given S.W. Australia as the habitat of this species, which must evidently be an error.

8. *ORTHOTOMUS CUCULLATUS*, Temminck.

Syn. *Orthotomus cucullatus*, Temm. Pl. Col. 599. f. 3 (1836).

G. R. Gray, Gen. of Birds, i. p. 162. Bonap. C. G. Av. p. 282.

Hab. Java; Sumatra.

O. cucullatus.—"Top of the head bright ferruginous; neck, cheeks, and the sides of the breast of a pure ash; the neck in front, the breast, and the middle of the belly are pure white; the sides, the thighs and the abdomen of a citron-yellow; back and wings of a greenish tint, the quills and tail margined with greenish; upper mandible brown, the lower as well as the feet yellowish."—*Temminck*.

9. *ORTHOTOMUS LONGICAUDA*, Gmelin.

Motacilla longicauda et sutoria, Gmel. S. N. L. i. pp. 954, 997.

Orthotomus longicauda, Strickl. Ann. N. H. xiii. p. 35. Blyth, J. A. S. Beng. xiii. p. 377; Catal. B. Mus. A. S. Beng. p. 144. G. R. Gray, Gen. of Birds, i. p. 162. Tickell, J. A. S. Beng. xvii. pt. i. p. 298. Hutton, J. A. S. Beng. xvii. pt. ii. p. 691. Bonap. C. G. Av. p. 281. Layard, Ann. N. H. 1853, p. 262.

Sylvia longicauda et sutoria, Lath. Ind. Orn. ii. pp. 545, 551; Gen. Hist. vii. pp. 79, 119. Vieill. Enc. Méth. p. 456.

Malurus longicaudus, Pearson, J. A. S. Beng. x. p. 644.

Sylvia guzuratta, Lath. Ind. Orn. ii. p. 554; Gen. Hist. vii. p. 129.

Orthotomus Bennettii et *O. lingoo*, Sykes, P. Z. S. (1832) p. 90. Lafres. Mag. de Zool. (1836) t. 52, 53. Jerdon, Madr. Journ. xi. p. 1. Hodgs. Cat. B. Nep. p. 63.

Orthotomus ruficapilla, Hutton, J. A. S. Beng. ii. p. 504 (1833).

Orthotomus sphenurus, Swains. 2 $\frac{1}{4}$ Cent. p. 343 (1838).

Orthotomus sutorius, v. *ruficapillus*, v. *sphenurus*, Hodgs. Gray's Zool. Misc. (1844) p. 82.

Orthotomus sutoria et *O. patia*, Hodgs. P. Z. S. (1845) p. 29.

Sutoria agilis, Nicholson, P. Z. S. (1851) p. 194.

The Indian Tailor Bird.

Phutki, of the Hindoos, Jerdon.

Tuntuni, of the Bengalese, Hamilton, Blyth.

Patia, or "*Leaf Bird*," Nepal, Hodgson.

Hab. India generally; Ceylon; Burmese countries; Malayan peninsula?

This species is too well known to require further description.

"*The Tailor Bird* is tolerably common in most wooded districts, and universally spread, frequenting cultivated ground, especially gardens, groves of trees, and is also found in high jungle, in the more open spaces. It lives in pairs or in small flocks, incessantly hopping about the branches of trees and shrubs, peas and other vegetables, with a

loud reiterated note, and picking various insects (chiefly ants and small larvæ) off the bark and leaves, and not unfrequently seeking them on the ground. It has the habit of frequently jerking up its tail while feeding or hopping about, and at times (especially when calling) it has the power of raising the feathers on the lower part of the throat, and displaying on either side a small black stripe. This has been noted by no one except Lieut. Hutton, who states, 'it is only seen when the bird is in motion, and wholly disappears when in a state of rest.' It has various notes, one of which sounds like *twee, twee, twee*, as mentioned by Col. Sykes, and another which is generally used when alarmed or angry, and sounds like *chick, chick, chick, chick, chick*. It is a familiar bird, and ventures close to houses, but when observed becomes wary."—*Jerdon*.

Dr. Nicholson says, "It has a loud, short, and not unmelodious song; its general cry being '*wheet, wheet, wheet*,' often repeated; but its alarm cry is like '*cheertah, cheertah, cheertah*.'"

The following are a few observations on the structure of two specimens of the nest of the Tailor Bird, found in the garden belonging to Capt. Hearsey, by Lieut. Hutton: "The first was neatly formed of raw cotton and bits of cotton threads, woven strongly together, thickly lined with horse-hair, and supported between two leaves on a twig of the Amaltás tree (*Cassia fistula*). These two leaves were first placed longitudinally upon each other, and stitched in that position from the points to rather more than halfway up the sides with a strong thread spun from the raw cotton by the bird, leaving the entrance to the nest at the point where they join the branch of the tree. Both of these leaves were of course green and living. Subsequently, however, they were blown down by a high wind, and being now withered, the nest appears enclosed between two dead leaves. The second specimen was at the end of a branch of the Bhela (*Semecarpus anacardium*), about two feet from the ground, and constructed of the same materials as the above, viz. raw cotton, cotton threads, also a little flax, and lined with horse-hair alone; the leaves were stitched together partly with thread prepared by the bird, and partly with spun thread; and so well concealed was it, that even after Capt. Hearsey had discovered it (by accident) he could scarcely find it again to show to me. In it were found an egg and two young birds nearly fledged. These I placed, with the nest, in a trap-cage, and thus succeeded in capturing both of the old birds. The young birds are similar in colours to the adults, except that they are paler and the top of the head cinereous with a faint rufous tinge; bill yellowish. The eggs are white, spotted, chiefly at the larger end, with tawny spots."

Further notices of the habits and nest of this curious bird are given by the following authors, at the places above referred to, viz. Hodgson, Sykes, Blyth, Layard, Nicholson, &c.

4. A MONOGRAPH OF CERITHIDEA, A GENUS OF MOLLUSCA, WITH DESCRIPTIONS OF SEVERAL NEW SPECIES, FROM THE COLLECTION OF HUGH CUMING, ESQ.: TO WHICH ARE ADDED, DESCRIPTIONS OF TWO NEW SPECIES OF COLINA, AND ONE OF DONAX. BY ARTHUR ADAMS, F.L.S.

Genus CERITHIDEA, Swainson.

1. CERITHIDEA DECOLLATA, Linnæus.

Murex decollatus, Linn. Syst. Nat. ed. 12. p. 1226.—*Cerithium decollatum*, Brug. Dict. no. 45.—? *Turbo pulcher*, Dillw. Cat. no. 91.

2. CERITHIDEA OBTUSA, Lamarck.

Cerithium obtusum, Lamk. Hist. Nat. ed. Desh. vol. iv. p. 294. no. 17.—*Strombus obtusus*, Wood.—*Cerithium decollatum*, Sow. Gen.

3. CERITHIDEA VARICOSA, Sowerby.

Cerithium varicosum, Sow. Gen. of Shells, f. 5; Kien. Mon. Cerith. pl. 30. f. 2.—*Cerithium validum*, C. B. Adams, Shells of Panama, p. 157.

4. CERITHIDEA MONTAGNEI, D'Orbigny.

Cerithium Montagnei, D'Orb. Voy. dans l'Amér. Mérid., Moll.; Kien. Mon. Cerith.—*Cerithium Reerianum*, C. B. Adams, Shells of Panama, p. 156.

5. CERITHIDEA PULCHRA, C. B. Adams.

Cerithium pulchrum, C. B. Adams, Shells of Panama, p. 156.

6. CERITHIDEA HEGEWISCHII, Philippi.

Cerithium (Potamides) Hegewischii, Phil. Zeit. f. Malac. 1848, p. 19; Abbild. und Beschreib.

7. CERITHIDEA SINENSIS, Philippi.

Cerithium (Potamides) Sinense, Phil. Zeit. f. Malac. 1848, p. 19.

8. CERITHIDEA CHARBONNIERI, Petit.

Cerithium Charbonnieri, Petit, Journ. de Conch. Nov. 15, 1851.—*Cerithium unicarinatum*, Metcalfe, Ann. and Mag. Nat. Hist.

9. CERITHIDEA LAFONDI, Michaud.

Cerithium Lafondi, Mich. Actes de la Soc. Linn. de Bord. 1829, pl. 5. f. 7, 8; Kien. Mon. Cerith. pl. 24. f. 3.

Subgenus PIRENELLA, Gray.

10. CERITHIDEA (PIRENELLA) CAILLAUDI, Potiez et Michaud.

Cerithium Caillaudi, Pot. et Mich. Cat. des Moll. de Douai, pl. 31. f. 17, 18.

11. CERITHIDEA (PIRENELLA) BICARINATA, Gray.

Cerithium bicarinatum, Gray, Fauna of New Zealand, p. 241.—
Cerithium tutulentum, Kien. Mon. Cerith. pl. 22. f. 3.

12. CERITHIDEA (PIRENELLA) CONICA, Blainville.

Cerithium conicum, Blainv. Faun. Franc., Moll. p. 158. no. 5. pl. 6A.
 f. 10.—*Cerithium Sardoum*, Cantr.; Kien. Mon. Cerith. pl. 22. f. 2.

13. CERITHIDEA (PIRENELLA) DIEMENENSIS, Quoy et Gaim.

Cerithium Diemenense, Quoy et Gaim. Voy. de l'Astr. iii. p. 128.
 pl. 55. f. 11–13; Kien. Mon. Cerith. pl. 23. f. 1.

14. CERITHIDEA (PIRENELLA) LARGILLIERTI, Philippi.

Cerithium (Potamides) Largillierti, Phil. Zeit. f. Malac. 1848, p. 20.

15. CERITHIDEA BALTEATA, A. Adams. *C. testa turrito-conica, apice truncata, tenui, rufo-fusca, linea spirali, albida ad medios anfractuum et altera ad suturas, ornata; anfractibus convexis, varicibus nullis, costis longitudinalibus, angustis, numerosis insculptis, transversim subsulcatis, ultimo rotundato, basi sulcato; apertura subquadrata, antice canaliculata; labro expanso, margine albo, reflexo, antice producto, auriculato.*

Hab. Island of Ticao, marshy places, salt water. Mus. Cuming.

This is a handsome shell, of a rich red-brown colour, ornamented with two yellowish-white bands, the hinder one interrupted and less distinct.

16. CERITHIDEA SIMILIS, A. Adams. *C. testa turrito-conica, apice obtusa, truncata, solidiuscula, rufescente, albido variegata; anfractibus planiusculis, varice unico ad anfractum ultimum, costis permultis, confertis, nodulosis, cingula moniliformi ad suturas instructis; anfractu ultimo rotundato, basi sulcato; apertura suborbiculari, antice canaliculata; labro expanso, extus incrassato, antice producto ac auriculato.*

Hab. Philippine Islands. Mus. Cuming.

Of a pale fulvous-brown colour, with flat decussated whorls, and a whitish moniliform band immediately below the sutures.

17. CERITHIDEA CRASSILABRUM, A. Adams. *C. testa elongato-conica, apice cornea, vix truncata, solida, cinerea; anfractibus convexis, varicibus nullis, ad suturas cingula filiformi instructis, costellis albidis, confertis; anfractu ultimo rotundato, basi sulcato; apertura quadrato-orbiculari, basi subeffusa; labro expanso, valde incrassato, reflexo, arcuato.*

Hab. Philippine Islands. Mus. Cuming.

This species is remarkable for the great thickness of the outer lip, and the thread-like belt at the sutures; the outer lip at the fore part is marked with two obscure brown spots; in some smaller varieties the ribs are more strongly developed, and the interstices between them are horn-coloured, and the upper whorls corneous.

18. *CERITHIDEA ALBIVARICOSA*, A. Adams. *C. testa turrito-conica, apice acuta, solida, fusco-grisea, linea spirali, luteola, ad medios anfractuum ornata, albivaricosa; anfractibus convexiusculis, varicibus numerosis, distantibus, alternantibus instructis, longitudinaliter costatis, costis nodulosis, transversim sulcatis; anfractu ultimo rotundato, basi spiraliter sulcato; apertura suborbiculari, antice sinuata; labro expanso, margine acuto, subreflexo.*

Hab. Philippine Islands. Mus. Cuming.

This species is easily recognized, on account of the conspicuous white varices of the whorls.

19. *CERITHIDEA RARICOSTATA*, A. Adams. *C. testa turrito-conica, apice truncata, tenui, rubro-fusca, linea albo-lutea spirali ad medios anfractuum ornata; anfractibus convexis, suturis impressis, varicibus nullis, costis longitudinalibus distantibus, interstitiis laevibus, subcostellatis; anfractu ultimo ad basin funiculo cincto, infra funiculum subplano et sulcato; apertura suborbiculari; labro margine acuto, expanso ac reflexo.*

Hab. Catbalonga, island of Samaar. Mus. Cuming.

The ribs in this species are few and wide apart, and the interstices are nearly smooth; the whorls are very convex, and the shell is thin and semipellucid.

20. *CERITHIDEA FORTUNEI*, A. Adams. *C. testa turrito-conica, apice acuta, solida, olivacea, linea spirali fusca ad medios anfractuum; anfractibus convexis, ad suturas marginatis, varicibus obsoletis nonnullis, costis permultis, elevatiusculis, aequalibus, arcuatis sculptis, transversim substriatis; anfractu ultimo rotundato, basi spiraliter sulcato; apertura suborbiculari, antice effusa; labro expanso, valde sinuato vix reflexo.*

Hab. China (Mr. Fortune). Mus. Cuming.

This is a solid and somewhat smooth species, with numerous ribs, which are obsolete on the last whorl.

21. *CERITHIDEA CORNEA*, A. Adams. *C. testa turrito-conica, apice truncata, tenui, cornea, fusca; anfractibus planiusculis, varicibus nullis, costis longitudinalibus, arcuatis, aequalibus sculptis; anfractu ultimo ad peripheriam angulato, basi subplano, sulcato; apertura subquadrata, antice sinuata; labro expanso, margine acuto, reflexo.*

Hab. Borneo, mouths of rivers. Mus. Cuming.

This species is more fluviatile than many of the others, and the texture of the shell is thin and horny; in general appearance it most resembles *C. Charbonnieri* of Petit, but the last whorl is not acutely carinated.

22. *CERITHIDEA RHIZOPHORARUM*, A. Adams. *C. testa turrito-conica, apice truncata, subsolida, cinerea; anfractibus superne pallide flavidis, planis, varice unico, subobsoleto ad*

anfractum ultimum, costellis arcuatis, nodulosis, permultis ornatis, transversim sulcatis; anfractu ultimo vix angulato; apertura quadrato-orbiculari, basi sinuata; labro breviter reflexo et arcuato.

Hab. Cagayan, province of Misamis, Mindanao. Mus. Cuming.

This species inhabits estuaries near the sea, and is found among the roots of the *Rhizophora*, or mangrove; it is a dull, solid, ashy-brown shell, with numerous corrugated ribs.

23. CERITHIDEA (PIRENELLA) LAYARDII, A. Adams. *C. testa turrita, apice acuta, solida, castaneo-fusca, albo-zonata; anfractibus planiusculis, triseriatim granosis, cingula moniliformi ad suturas instructis; anfractu ultimo ad peripheriam subangulato et bicarinato; apertura ovata, antice subcanaliculata; labro tenui, in medio sinuato.*

Hab. Ceylon (E. L. Layard, Esq.). Mus. Cuming.

This is a very pretty species, somewhat resembling the *P. mamillata* of Philippi, but the character of the sculpture of the whorls is entirely different.

24. CERITHIDEA (PIRENELLA) PAUXILLA, A. Adams. *C. testa parva, turrito-conica, apice acuta, nitida, straminea; anfractibus planiusculis, varice unico ad anfractum ultimum, suturis canaliculatis, anfractibus triseriatim granosis; apertura quadrato-orbiculari, antice sinuata; labro acuto, expanso, margine sinuoso.*

Hab. Burias, Philippines. Mus. Cuming.

This is a small yellowish-brown shining species, with deeply-channeled sutures, and with the whorls ornamented with three series of rather acute tubercles.

25. COLINA PINGUIS, A. Adams. *C. testa fusiformi, in medio ventricosa, flavido-fusca, transversim sulcata, spira attenuata, apice mucronata; anfractibus supremis lævibus, mediis serie tuberculorum instructis, ultimo lævigato, superne nodoso-plicato; apertura ovali, antice canaliculata, canali brevi; labro expanso, margine subreflexo, fusco articulato.*

Hab. Philippine Islands. Mus. Cuming.

This is a very singular shell, with a series of large tubercles on the middle gibbose whorls, and with the last whorl smooth, and exhibiting all the characters of the genus *Colina*.

26. COLINA COSTATA, A. Adams. *C. testa fusiformi, in medio gibbosula, flavescens, rufo sparsim maculata, transversim lirata, longitudinaliter costata, costis crassis, æqualibus, interstitiis lineis transversis, elevatis insculptis; anfractu ultimo ecostato, cingulis granulosus, transversis ornato, antice angulato, basi sulcato; apertura ovali, antice canaliculata, canali brevi, aperto; labro expanso, margine incrassato et reflexo.*

Hab. Philippine Islands. Mus. Cuming.

This species differs from the others of the genus in the longitudinal ribs of the whorls, and in the elevated granular transverse liræ.

27. DONAX KEYII, A. Adams. *D. testa trigonali, inæquilaterali, latere antico abrupte truncato, epidermide fusca, tenui oblecta, oblique valde costata, costis æqualibus, interstitiis concinne cancellatis; margine ventrali denticulato, arcuato, postice subsinuato; intus, ad laterum anticum, macula oblonga, violacea ornata.*

Hab. Hippopotamus Point, Quilimane River, East Africa (Gilbert Key, Esq., R.N.).

A very pretty and curious species, characterized by the strongly-marked oblique ribs with the interstices cancellated, and with a violet spot in the interior of the valves.

March 14, 1854.

Dr. Gray, Vice-President, in the Chair.

The following papers were read :—

1. OBSERVATIONS ON THE GENUS PALUDOMUS OF SWAINSON, WITH DESCRIPTIONS OF SEVERAL NEW SPECIES, AND THE DESCRIPTION OF A NEW SPECIES OF ANCULOTUS. BY EDGAR L. LAYARD, F.Z.S., C.M.E.S. ETC. ETC.

A cursory survey of the genus *Paludomus*, which Swainson many years ago separated from *Melania*, at once satisfied me that several genera or subgenera, differing in structure and habits, were united together under one name by Mr. Reeve, in his monograph on the genus in the 'Conchologia Iconica,' where he describes the characters of the genus as follows :—"Animal fluviatile, with a horny sub-triangularly-ovate concentrically-striated operculum."

Had Mr. Reeve been furnished with the operculum and a correct account of the habits of each species, he never would have left the genus as it now stands. I was not aware that Dr. Gray had separated one division from it, until so informed by him when I introduced the subject to the notice of the Zoological Society on a former evening; and I rejoice to find that my observations on the Mollusca in their natural state confirm the views to which that learned zoologist has arrived, from the structure of the opercula.

This induced me carefully to examine the whole group; and the ample collection of Mr. Cuming, ever open to the investigator, my own cabinet, particularly rich in this family, and my memoranda taken in Ceylon, have furnished the results here presented to the Society.

I propose to separate the genus into four divisions, founded upon the structure of the operculum.

The first I shall designate PALUDOMUS, as, with the addition of the position of the nucleus in the operculum, the characters, as given

by Reeve, sufficiently describe that organ, and from its partiality to sluggish waters (two species being found in the marshy borders of tanks or artificial lakes), it better suits the name than any of the other divisions. A note of interrogation after a species implies that I have not seen the operculum, but from the form I consider it to belong to the division in which it is placed.

Genus 1. PALUDOMUS, Swains.

Animal inhabiting gently-running or still water. Operculum horny, subtriangularly ovate, with the apex superior and slightly inclined; concentrically striate; nucleus subcentral, sinistral.

<i>P. laevis</i> , Layard.	<i>P. decussatus</i> , Reeve?
<i>P. palustris</i> , Layard.	<i>P. Stephanus</i> , Benson?
<i>P. chilinoides</i> , Reeve.	<i>P. conicus</i> , Gray.
<i>P. phasianinus</i> , Reeve.	<i>P. bifasciatus</i> , Reeve.
<i>P. acutus</i> , Reeve.	<i>P. spiralis</i> , Reeve.
<i>P. bicinctus</i> , Reeve.	<i>P. pictus</i> , Reeve?
<i>P. constrictus</i> , Reeve.	<i>P. bacula</i> , Reeve?
<i>P. nigricans</i> , Reeve.	<i>P. abbreviatus</i> , Reeve?
<i>P. paludinosides</i> , Reeve.	<i>P. clavatus</i> , Reeve?
<i>P. punctatus</i> , Reeve.	<i>P. Maurus</i> , Reeve?
<i>P. globulosus</i> , Reeve?	<i>P. rudis</i> , Reeve?

Genus 2. GANGA*, Layard.

Animal inhabiting gently-running water. Operculum horny, subtriangularly ovate; apex superior, slightly inclined, concentrically striate; nucleus subcentral, dextral.

G. dilatata, Reeve. *G. neritoides*, Reeve? *G. olivacea*, Reeve?

Genus 3. TANALIA, Gray.

Animal fluviatile, delighting in the most rapid mountain torrents. Operculum horny, subtriangularly ovate; apex lateral, lamellated; nucleus lateral, dextral.

<i>T. loricata</i> , Reeve.	<i>T. Gardneri</i> , Reeve.
<i>T. crinascens</i> , Reeve.	<i>T. Tennentii</i> , Reeve.
<i>T. ærea</i> , Reeve.	<i>T. Reevei</i> , Layard.
<i>T. Layardi</i> , Reeve.	<i>T. similis</i> , Layard.
<i>T. undata</i> , Reeve.	<i>T. violacea</i> , Layard.
<i>T. funiculata</i> , Reeve.	

Genus 4. PHILOPOTAMIS, Layard.

Animal fluviatile, amphibious, delighting in rocky torrents. Operculum horny, subtriangularly ovate; apex superior, paucispiral; nucleus sub-basal, dextral.

Ph. sulcatus, Reeve. *Ph. Thwaitesii*, Lay. *Ph. regalis*, Lay.

* Cingalese name for a river.

One characteristic habit, separating the whole of these species, as far as I can ascertain, from *Melania*, is that they are constantly found adhering to stones, or the submerged roots of trees and stems of aquatic plants, which the *Melaniæ* never are; neither do they burrow in sand, as do the *Melaniæ*, though they often resort to a sandy locality, perhaps for the purpose of breeding. The habit in *Ph. sulcatus* of crawling several feet out of the water on the damp grass is remarkable.

A few remarks on the various species in detail may prove not unacceptable.

PALUDOMUS CHILINOIDES, Reeve.

This is the commonest species of the whole tribe. It is found in gently-running water generally, but often in paddy fields and other marshy grounds to which these running waters have access.

The animal is blackish-mottled, forehead produced into an obtuse point, slightly indented in the centre and fringed with red dots; tentacula two, acuminate; eyes two, sessile, situated about one-fifth of the distance up the tentacles.

I have taken the operculum of this species as the type of the family; it therefore needs no description.

PALUDOMUS LÆVIS, Layard.

Shell oblong-ovate; axis 11 lines, diam. 7 lines; spire acute, exerted, moderately long; whorls rounded, not depressed round the upper part, smooth. Colour olive-yellow, the lower whorls seldom marked, but the upper always spotted with one or two rows of arrow-headed dots; apex bluish; aperture white.

Operculum as in *Pal. chilinoides*.

Hab. Ceylon, in slow-running streams on the northern side of the mountain zone extending into the flat country beyond Anarajahpoora. I also obtained a few in a paddy field in the south of the island, near the village of Heneratgodde. Mus. Cuming et Layard.

I think this may prove to be but a variety of *Pal. chilinoides*, although the experienced eye of Mr. Cuming at once separated it from that species. It is found in the same localities, and only differs from it in wanting the depression round the upper part of the whorls and in the colouring; the mollusk is similar.

PALUDOMUS PALUSTRIS, Layard.

Shell ovate, thin; axis 10 lines, diam. 6 lines; spire exerted, long; whorls rounded, rather flat, spirally closely grooved with minute granular striæ (visible under the lens). Colour of adult shell* a rich yellow spotted with dark brown, the markings frequently running into wavy lines; apex bluish; aperture white.

* In young shells the ground colour is almost hidden by the dark markings, and the aperture is found to be spirally marked with thin lines of the same colour.

Operculum nearly oval, the apex slightly inclined to the left; concentric nucleus subcentral, sinistral.

Hab. The grassy margins of a tank at Anarajahpoora. Mus. Cuming et Layard.

PALUDOMUS NIGRICANS, Reeve.

Operculum as in *Pal. chilinoides*, Reeve.

Hab. Balcaddua Pass, mountain torrent, affecting the little pools and not found in the rapids.

PALUDOMUS CONSTRICTUS, Reeve.

Operculum as in *Pal. chilinoides*, Reeve, but with the apex very much inclined to the left.

Hab. Kadaganava Pass, mountain streams. I have not taken it *in situ*. Mus. Cuming et Layard.

PALUDOMUS BICINCTUS, Reeve.

Operculum as in *Pal. chilinoides*, Reeve.

Hab. Balcaddua Pass, in the Mahavillaganga, shallow quiet places on sand. Mus. Cuming et Layard.

PALUDOMUS PHASIANINUS, Reeve.

Operculum as in *Pal. chilinoides*, Reeve.

I cannot help thinking that this is but a geographical variety of *Pal. chilinoides*, of which the Ceylon race will be the connecting link. Seychelles type. Mus. Cuming. Ceylon var. Mus. Layard.

PALUDOMUS PALUDINOIDES, Reeve.

Operculum as in *Pal. chilinoides*, Reeve.

Hab. Ganges. Mus. Cuming et Layard.

PALUDOMUS DECUSSATUS, Reeve.

Operculum as in *Pal. chilinoides*.

Hab. Balcaddua Pass, mountain torrent, in company with *Pal. nigricans*, Reeve. Mus. Cuming et Layard.

PALUDOMUS PARVUS, Layard.

Shell ovate; axis 6 lines, diam. 4 lines; spire exerted, moderately long; whorls slightly rounded, smooth. Colour dark olive-yellow, more or less marked with fine spiral brown lines; aperture white.

Operculum as in *P. chilinoides*, Reeve.

Hab. Bombay. Mus. Cuming et Layard.

PALUDOMUS GLOBULOSUS, Reeve.

I am not quite satisfied that the opercula which I received with the specimens of this shell presented to me, are really the proper opercula of the species, but it probably belongs to this group.

I was told that the shells came from Rambodde Pass, between Newera Elia and Kandy, but never saw it *in situ*, as I did not visit that locality. Mus. Layard et Cuming.

PALUDOMUS SPIRALIS, Reeve.

I include in this group, from its resemblance to my *Pal. palustris*. The only specimens I ever saw are in Mr. Cuming's cabinet.

PALUDOMUS DILATATUS, Reeve.

Operculum concentric ; nucleus subcentral, dextral.

Hab. Ceylon, Ramboide Pass, mountain torrent. This species was given to me along with *Pal. globulosus* ; I therefore know nothing of its habits.

Genus *TANALIA*, Gray.*TANALIA LORICATA*, Reeve.

This species grows to its largest size in the Calloo ganga, above Ratnapoora, where it is found in the most rapid foaming currents adhering to rocks. It resorts to deep sandy pools and reaches at some seasons, but apparently will not exist in a river devoid of rocks and rapids. Most of the streams of the southern provinces answering to this description contain it ; but I never met with it to the northward, where the rivers become more sluggish.

The mollusk is almost black.

TANALIA CRINASCENS, Reeve.

I doubt this being more than a geographical variety of the preceding species ; and not being aware that it had been separated from it, did not pay attention to the operculum, though it evidently belongs to this group. I have only received the species from one locality, Kadaganava Pass, between Colombo and Kandy ; but have intermediate varieties, on which half the spines are solid, as in *loricata*, half capped and hollow, as in *crinascens*.

T. ÆREA, Reeve. *T. LAYARDI*, R. *T. UNDATA*, R.

I seek in vain for sufficient distinction in these species to separate them from *loricata*. Take a strongly-marked specimen of each, and the division appears an excellent one ; place a hundred of each, and the gradations are imperceptible.

As far as my recollection serves me, there is nothing different in the animals ; but as I was not aware of the separation of *ærea* and *Layardi*, I did not closely scrutinize them ; however, of *undata* dozens passed in review with careful survey.

They are found with *loricata* and the pseudo-variety *crinascens* before mentioned ; and the opercula are undistinguishable, save that those of *ærea* having a wider aperture to fill, are larger and not quite so angular. I look upon them as varieties of *loricata*.

TANALIA GARDNERI, Reeve.

Operculum not distinguishable, except in size, from that of *loricata*. In very large specimens the angle is often very great, and is bent outward on the exterior side.

Hab. I found this species in a waterfall pool at Tambillichna, below Ratnapoora ; also in the Calloo ganga, but only in the most rapid current, mixed with *loricata* and the next species.

TANALIA TENNENTII, Reeve.

Operculum the same as in the preceding species, but, if anything, always more angular.

Hab. as in *T. Gardneri*.

TANALIA REEVEI, Layard.

Shell oblong ovate; axis $1\frac{1}{2}$ inch, diam. 1 in. 2 lines. Spire exerted, short. Whorls rounded, spirally corded with rather distant obtuse ridges, longitudinally striated with well-marked close-set striæ, the great characteristic mark of the species. Aperture: outer lip edged with deep purple-brown, columellar lip white. Colour a dark yellow-brown, thickly marked with longitudinal, slanting, jet-brown wavy bands.

Hab. The Calloo ganga, Ratnapoora.

I have much pleasure in dedicating this beautiful species to the gentleman who has so extensively investigated this peculiar family.

TANALIA VIOLACEA, Layard.

Shell globose; axis 6 lines, diam. 5 lines. Spire very short, slightly exerted. Whorls rounded, ventricose, spirally grooved with close-set, fine, minutely decussated striæ (in one variety the striæ become ridges). Colour a dark bluish-brown, almost amounting to black, with darkish brown patches appearing in some specimens. Aperture deep violet inside; columella white, stained on the outside edge with dark brown.

Hab. A small mountain torrent in a dense forest between Gillymalle and Pallabaddoola, towards Adam's Peak, Ceylon.

TANALIA SIMILIS, Layard.

Shell rather globose; axis 8 lines, diam. 6 lines. Spire short, exerted. Whorls rounded, ventricose, spirally grooved with close-set, fine, minutely decussated striæ. Colour rich olive-yellow, profusely marked with longitudinal, wavy, dark lines, interrupted by four or five fine transverse bands of the same colour. Aperture: the dark markings of the shell show through, and are dimmed by a bluish haze; columellar lip white, stained on the outside edge with dark brown, which runs round the outer lip in a thin band.

Hab. A mountain torrent at Kandangamoa, near Ratnapoora.

TANALIA FUNICULATA, Reeve.

I never could find any species which answered to Mr. Reeve's description of this shell, until Mr. Cuming kindly lent me the type specimen, when an hour's immersion in soap and water showed that the "jet-brown" was merely the accumulation of the freshwater algæ (which always cover this sluggish family) and the red cabooky dust of "India's utmost isle." This cleaning revealed a bright yellow epidermis, variegated with dark brown wavy lines, and the very minutely striated structure of the shell; and the specimen immediately ranged itself with a series of a very variable shell, which I had in vain endeavoured to reconcile with any published description.

A more lengthened description of this species, which I shall still call *T. funiculata*, Reeve, may prove acceptable, and prevent others from experiencing the same difficulty which I have felt.

Shell oblong ovate; axis 13 lines, diam. 10. Spire exerted. Whorls rather depressed round the upper part, spirally corded with rather distant obtuse ridges placed at unequal distances, sometimes with a thread-like ridge between two larger ones, the whole minutely longitudinally striated. Colour a bright rich yellow, variegated with closely set, dark brown, broadish, zigzag lines. Interior whitish; exterior lip faintly marked all round with purplish-brown, with frequent dark brown spots; columellar lip white, with the exterior margin stained with a bright pale brown. This description is taken from the original type shell; in some examples the ridges are almost, if not quite, obsolete; the spire is hardly exerted, the zigzag lines lost, and the aperture almost pure white; one of these specimens measures, axis $9\frac{1}{2}$ lines, diam. 8 lines. In another, measuring, axis 17 lines, diam. 14 lines, the striae are much coarser, and some of the upper ridges present a decided indication of nodules! The outer lip is pretty deeply edged with dark brown, and the bright brown of the columellar lip, though still present, is soon changed into a deep rich hue.

The species is abundant in a mountain stream not far from Ratnapoora, probably the very stream whence my lamented friend Dr. Gardner procured the type specimen, as it is crossed by the high road leading thither from Colombo; and, as I have had opportunity of witnessing, Dr. Gardner never failed to examine every stream he passed.

PHILOPOTAMIS SULCATUS, Reeve.

Operculum ovoid; apex slightly inclined, sinistral, paucispiral. Nucleus sub-basal, dextral. Mollusk black; forehead produced, as in *Paludomus chitinoides*; tentacles and eyes also the same.

Hab. Weyweldenia, a rocky rivulet. I found this species *loc. cit.*, and I then remarked that vast numbers of them were crawling on the wet grass on the banks of the stream. I subsequently found it at Kandangamoa and in the Calloo ganga.

PHILOPOTAMIS REGALIS, Layard.

Shell oblong ovate; axis 1 inch, diam. 9 lines. Spire exerted, short. Whorls rounded, depressed at the upper part, spirally corded with close-set slight ridges, longitudinally minutely striated, and crowned with a single row of short, sharp, hollow, angular spines, closely set. Colour yellowish-olive, painted with wavy, dark brown longitudinal lines. Aperture pure white.

Operculum unknown, but most probably as in *P. sulcatus*.

Hab. Stream in the Cnia Corle, Western province, Ceylon.

PHILOPOTAMIS THWAITESII, Layard.

Shell oblong ovate; axis 13 lines, diam. 9 lines. Spire exerted, short. Whorls almost carinated round the upper part, spirally

corded with unequal-sized, close, but irregularly set ridges, granulated or minutely striated. Colour yellowish-olive, painted more or less with wavy, dark brown longitudinal lines. Aperture pinkish-white, occasionally having the outer lip dotted with dark pink-brown marks.

Hab. Same as *P. sulcatus*.

This is a rare shell, if really distinct from *sulcatus*, from which and from *regalis* it may at once be distinguished by the shallowness and irregularity of the ridges.

ANCULOTUS CARINATUS, Layard.

Shell somewhat globose; axis 5 lines, diam. 4 lines. Spire exerted, short. Whorls inflated, rather square, sharply keeled round the inferior angle. minutely longitudinally striated. Colour dull olive, marked faintly with two or three broad bands of dark rufous-brown, which are very apparent in the aperture; columellar lip white, stained with a light dash of the same rufous-brown on the exterior margin.

Hab. Streams in the Mahakeshwar Hills, Bombay Presidency.
Mus. Cuming.

2. DESCRIPTIONS OF SOME NEW SPECIES OF LOPHOCERCIDÆ AND PHILINIDÆ, FROM THE CUMINGIAN COLLECTION. BY ARTHUR ADAMS, F.L.S. ETC.

1. **LOPHOCERCUS KROHNII, A. Adams.** *L. testa involuta, ovato-oblonga, postice gibbosa, ad apicem subangulata et plicata; spira occulta, alba, nitida, fragili, pellucida; apertura ovali, postice acuta, antice dilatata; labro postice soluto, angulo postico libero inflexo ac rotundato.*

Hab. Sandwich Islands. *Mus.* Cuming.

This species is more gibbose posteriorly than *L. Sieboldii*; the region of the spire is plicate, and the shell is pellucid, white, and fragile.

2. **LOBIGER PELLUCIDUS, A. Adams.** *L. testa ovali, subinvoluta, alba, fragili, pellucida, longitudinaliter substriata, spira occulta; apertura oblonga, ampla, postice producta et subangustata, antice dilatata; labio tenui, subreflexo; labro arcuato, margine acuto.*

Hab. —? *Mus.* Cuming.

This species differs from *L. Philippii* in being white and nearly pellucid, and from *L. Cumingii* in the very different form of the aperture, this not being produced into a narrow spout-like canal posteriorly.

3. **PHILINE ORIENTALIS, A. Adams.** *P. testa ovato-rotundata, subinvoluta, alba, solida, nitida, spira nulla; apertura magna, antice effusa; labro semicirculari, angulo postico producto et rotundato.*

Hab. Eastern Seas. *Mus.* Cuming.



Proc. U. S. Acad. Nat. Sci.

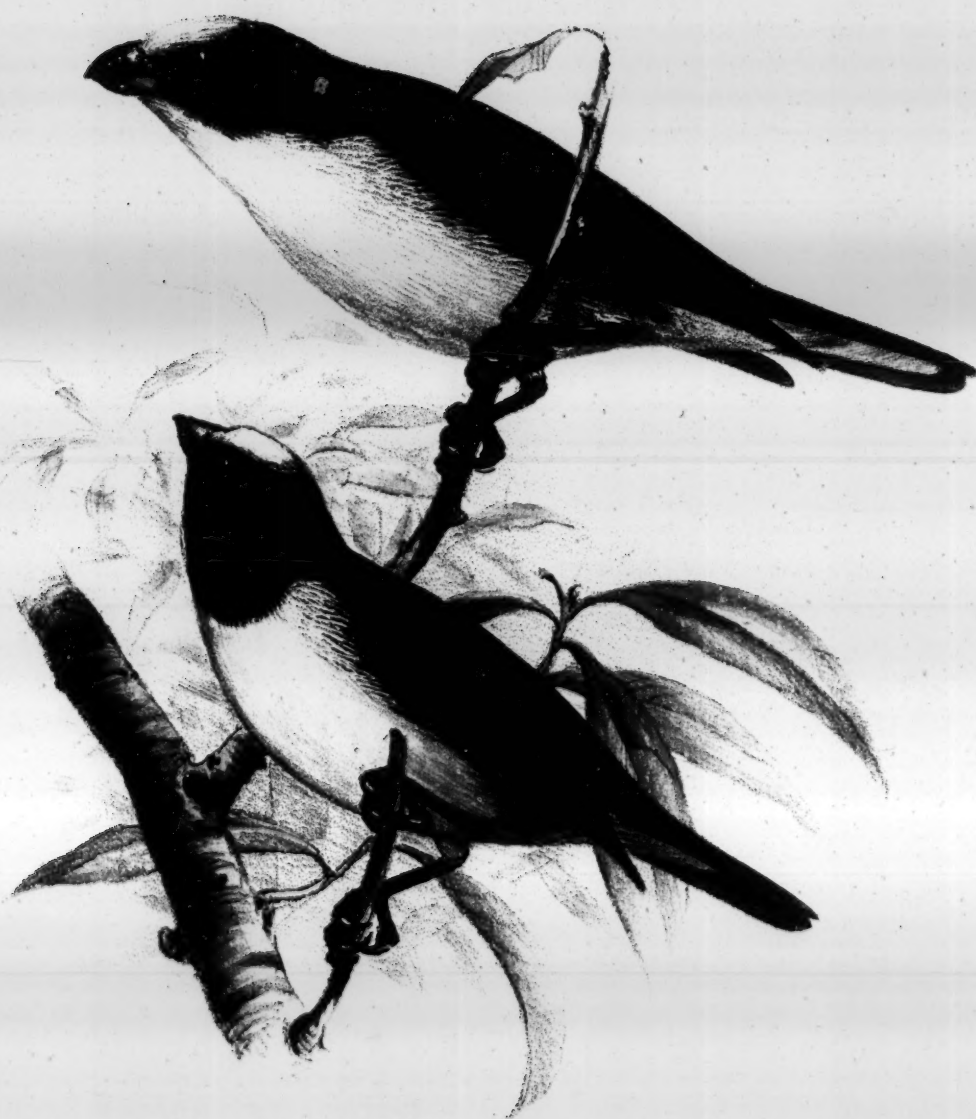


J. W. P. S.

M. & N. Gould, L.

TITMARTINUS CHLOROCNOTA. *Schaler*. (Nat. Size)





J. Wolf, lith.

M. & W. Hanhart, imp.

1. EUPHONIA HORUNDINACEA. *By*

2. EUPHONIA GONGINHA. *Snyder*

This species has somewhat the form of *P. aperta*, but wants the transverse impressed groove seen in that species; the plates of the gizzard, moreover, are produced at each end into long slender processes, somewhat similar to those of *P. Schræteri*, the shell of which is very different in form.

March 28, 1854.

Dr. Gray, Vice-President, in the Chair.

Mr. Gould exhibited male and female specimens of a very rare English Duck, described in 1847 by Mr. Bartlett, under the name of *Fuligula ferinoides*. The specimens exhibited were lent to Mr. Gould by M. Van den Bergh, of Rotterdam. Mr. Gould mentioned, that only three instances of the occurrence of the bird in England are on record; one of the specimens is in the collection of J. H. Gurney, another in that of Mr. Doubleday, of Epping, and the third in the museum of the late Earl of Derby, at Liverpool.

The following papers were then read:—

1. CHARACTERS OF SOME NEW OR IMPERFECTLY-DESCRIBED
SPECIES OF TANAGERS.

BY PHILIP LUTLEY SCLATER, M.A., F.Z.S.

(Aves, Pl. LXIV. and LXV.)

I have been collecting Tanagers for some time, with the view of ultimately attempting a monograph of the family. But the forms in many of the genera are so closely allied, and the limits of the family itself at present so unsettled, that a larger collection of species, and a much greater familiarity with the subject-matter than I have yet had time to acquire, are requisite before such a monograph can be satisfactorily completed. Puzzling indeed to ornithologists would seem the question, "What is a Tanager?" as puzzling perhaps as to political economists Sir Robert Peel's celebrated poser, "What is a pound?" My ideas on this point, that is, I mean, as to the position and extent of the family or subfamily of Tanagers, coincide, I believe, nearly with those of Mr. G. R. Gray.

A Tanager I consider to be a *dentirostral* Finch—to be distinguished from other more typical *Fringillidæ* by the presence of one or more teeth or notches in the upper mandible (sometimes further developing themselves into serrations, as in certain species of *Euphonia* and *Tachyphonus*), and the culmen being always more or less inflexed, never straight. The colours of the group are generally very brilliant. They feed on ripe fruit, some on insects, and perhaps in habits rather resemble *Sylviadæ* than true *Fringillidæ*.

With these views, I keep among the Tanagers the *Pityli* and *Saltatores*, excluded therefrom by certain modern systematists, and retained among the *Fringillidæ*, while the whole of what may be termed the more typical portion of the group is removed far away to the neighbourhood of the *Sylvicolinæ*.

Now I think it will be impossible to settle these, and other families belonging to the South American Fauna, in a really satisfactory way, until we know much more than we do at present of the habits and customs of the animals of that vast continent. Unfortunately those who have hitherto written upon the ornithology of that country have in general had too little previous *scientific* knowledge of the subject. Not, of course, that this makes them less accurate observers of facts, but only less likely to hit upon the right facts to be observed. A person previously well acquainted with the varied forms of South American ornithology by study of the European collections, so as to know what points required looking up, would, I have little doubt, be in a much more favourable condition for observing these animals in their native haunts, and thereby solving many of those doubts which at present so perplex the student of natural history. As, however, we may perhaps have to wait some time before a determination of the question "What is a Tanager?" can be arrived at in this manner, I propose adopting as provisional limits for the family or subfamily, nearly those given by Mr. G. R. Gray in his 'Genera of Birds,' excluding only the genera *Pipilo*, *Embernagra*, and *Emberizoides*, which appear to me to go better with *Zonotrichia* and its allied forms. To show the arrangement I contemplate, I have formed a list* of the genera and species, which may perhaps be useful for collectors to mark off their duplicates or desiderata; though, as a mere catalogue of names, it is, of course, of no scientific value. Some of the many lately-formed genera now used, I may hereafter find occasion to consolidate, the principle of subdivision having been carried to great lengths in this as in other families.

My present list contains the names of 222 species, though I have no doubt that many more remain to be discovered. These are all believed to be *real*, not *nominal* species; indeed I have myself seen specimens of nearly the whole of them, and the ten or twelve I have not personally examined I believe rest on good authority. The names used are many of them taken from Bonaparte's 'Conspectus,' his "Note sur les Tangaras" in the 'Rev. et Mag. de Zool.' for 1851, the 'Museum Heineanum' of Cabanis, and my own papers in Sir William Jardine's 'Contributions.'

The Tanagers are essentially a South American family. Out of the whole 222 species, 193 are from the continent south of the Isthmus of Panama, and the rest mostly either from Central America or Southern Mexico. Three or four only are peculiar to certain of the West Indian islands, and three only, well-known members of the genus *Pyrrhula*, extend as summer migrants into the United States of North America. Through South America they range down to the Rio

* Tanagarum Catalogus Specificus. Auctore Philippo Lutley Sclater. Basingstoke, 1854. 8vo. 16 pp.

de la Plata, but on the western coast I am not aware that they have been observed nearly so far south. M. d'Orbigny met with but one species* at all on the occidental slope of the Andes; Tschudi mentions but three or four as occurring in the vicinity of Lima, on the coast-region of Peru.

Subjoined are the specific characters of five species occurring in my list, of which accurate descriptions have not yet been published.

1. ARREMON AXILLARIS, Sclater. *A. supra olivaceo-viridis; capite atro; superciliis productis albis; vitta verticali et cerice postica cinereis: subtus niveus, lateribus cinerascentibus; macula utrinque cervicali vittam quasi imperfectam formante, mentoque summo atris; remigibus reetricibusque nigricantibus: tectricibus alarum majoribus flavo-olivaceis, minoribus et axillis læte flavis: mandibula superiore nigra, inferiore flava: pedibus clare brunneis.*

Long. tota 5·2, alæ 3·0, caudæ 2·0 poll. Angl.

Acis junior. Semitorque collari vix conspicuo.

Hab. In Nova Grenada.

Obs. Species *Arremoni semitorquato* maxime affinis, sed hujus axillis olivaceis, illius lætissime flavis.

2. RAMPHOCELUS DORSALIS, Bp. MS. ♂ *Coccineus: dorso medio obscurius coccineo: alis caudaque nigris: rostro nigro, mandibula inferiore basi læte alba.*

♀ *Fusco-brunneus: alis caudaque nigricantibus: uropygio et ventre toto erubescens: rostro brunneo.*

Long. tota 7·0, alæ 3·2, caudæ 3·2.

Hab. In imp. Brasiliensi.

Obs. *R. brazilio* maxime affinis at dorso medio obscurius coccineo.

I should hardly have ventured to have separated this species from *R. brazilius*, from which it only differs, so far as I can make out, in the patch of darker colouring in the middle of the back; but as the Prince Charles Bonaparte has done so, and his MS. name has attained wide circulation on the MM. Verreaux's labels, I think it best to give a published description of the grounds of the alleged specific difference. However, M. Jules Verreaux,—a good authority,—considers the two species truly distinct, and has assured me, if I recollect right, that he has seen and shot them both frequently at Rio and Pernambuco.

3. BUTHRAUPIS CHLORONOTA, Sclater. (Pl. LXIV.) *B. supra viridis; pileo cæruleo: alis caudaque nigris, illarum tectricibus minoribus cæruleis; majoribus et secundariis viridi limbatis: subtus flavus, crisso saturatiore: gutture toto atro: rostro pedibusque nigris.*

* The *Tanagra striata*, Gm., in the ravines of Palca in Peru, 18° S.L. M. d'Orbigny attributes a wide range to this species, which he says occurs besides in the Banda Oriental, near Monte Video, at Buenos Ayres, near La Paz, and in the provinces of Yungas, Sicasica, Cochambamba, Valle Grande, and Chiquisaca in Bolivia. (Voy. p. 272.) But, *quære*, does he not confound with *T. striata*, Tschudi's *T. frugilegus*?

Long. tota 8·8, alæ 4·6, caudæ 3·8.

Hab. In republ. Equatoriana.

Obs. Affinis *B. eximia*, sed major, dorso toto viridi nec uropygio cæruleo.

I have seen only one specimen of this species, which was received by the Frères Verreaux of Paris from Ecuador. It is closely allied to *B. eximia*, but is larger in all its dimensions, nearly equalling in size *B. cucullata*. Its distinguishing character is the uniform green back, whence I have named it *chloronota*. I have examined multitudes of *B. eximia*, and invariably found the uropygium blue.

4. EUPHONIA CONCINNA, Slater. (Pl. LXV. 2.)

E. hirundinacea, Bp. Rev. et Mag. de Zool. 1851, p. 156?—

E. affinis, Less. Rev. Zool. 1842, p. 175?

E. supra nigro-violacea valde purpurascens; pileo summo flavo: infra gutture nigro-violaceo; abdomine aurantio-flavo: cauda subtus immaculate nigra.

Long. tota 3·8, alæ 2·2, caudæ 1·4.

Hab. In Nova Grenada.

Obs. *E. chlorotica* similis, sed cauda subtus immaculata, fronte latius nigro, dignoscenda.

This bird is one of the group so closely affine to *E. chlorotica*, but may be distinguished from all of them (as *E. melanura* from *E. violacea* and its affines) by the absence of white markings on the exterior rectrices. The middle of the belly is also of a brighter orange tint, and the black front is broader than in *E. chlorotica*. A skin of this species, received from the MM. Verreaux, is labelled *E. hirundinacea*, Bp., and it is probably the species referred to by that name in the "Note sur les Tangaras," Rev. et Mag. de Zool. 1851, p. 156. It is not however the true *E. hirundinacea*, Bp. Proc. Zool. Soc. 1837, p. 117; for on examination of the type of that species, which is now in the Derby Museum at Liverpool (labelled *E. hirundinirostris*!), I found it coequal with the bird described by me (Cont. to Orn. 1851, p. 86) as *E. laniirostris*, which again is not the true *laniirostris* of MM. de Lafresnaye and d'Orbigny, but a closely allied species, called in the Baron de Lafresnaye's museum *E. fortirostris*. This must, of course, for the future bear the first proposed specific appellation *hirundinacea*, and will stand as follows:—

5. EUPHONIA HIRUNDINACEA, Bp. (Pl. LXV. 1.)

Euphonia hirundinacea, Bp. Proc. Zool. Soc. 1837, p. 117.—*E.*

laniirostris, Slater, Cont. to Orn. 1851, p. 86.—*E. hirundini-*

rostris, Bp. in Mus. Derb.—*E. fortirostris*, Lafr. in mus. suo.

E. æneo-nigra: capite summo antico et corpore toto subtus flavis: rectricibus 2 utrinque extimis late albo intus notatis: rostro et pedibus nigris.

Long. tota 4·5, alæ 2·5, caudæ 1·5.

Hab. In Guatimala (*Bp.*); Chiriqué in Veragua (*Kellett* in Mus. Brit.); Nova Grenada?

Obs. *E. violacea* similis, sed æneo-nigra nec purpurascens: rostro robustiore.

April 11, 1854.

Dr. Gray, Vice-President, in the Chair.

The following papers were read :—

1. DESCRIPTIONS OF TWO NEW SPECIES OF PUCRASIA.

By JOHN GOULD, F.R.S. ETC.

Mr. Gould having recently found in the rich stores of the East India Company, at their house in Leadenhall Street, a new species of Pheasant, of the same form but remarkably different from the Pucras Pheasant, took the earliest opportunity, with Dr. Horsfield's permission, of bringing it under the notice of the Society. This fine bird, of which two specimens have been sent to the East India Company from Kafiristan by Dr. William Griffith, may be at once recognized by the uniform chestnut colouring of its mantle, breast and flanks, which has suggested the specific name of

PUCRASIA CASTANEA.

Forehead, cheeks, chin and lengthened portion of the crest dark shining green; hinder part of the head and the shorter portion of the crest dull sandy-buff, the two colours blending on the occiput; on each side of the neck an oval patch of white; lanceolate feathers of the neck, both above and below, breast and flanks, deep chestnut; feathers of the upper part of the back black, stained with chestnut on the outer web and margined with grey; lower part of the back and rump grey, fading into white on the edges, and with a narrow streak of blackish-brown down the shaft; wing-coverts dark brown, largely edged with greyish and ashy-brown; primaries brown on the inner margins, cream-white on the outer ones; feathers of the lower part of the abdomen brownish-black, edged with whitish; under tail-coverts chestnut, with a black line down the centre, and fringed with white at the tip; upper tail-coverts ashy-grey, with a broad mark of blackish-brown down the centre, but not extending to the tip; tail-feathers black, the central ones broadly margined with grey freckled with black, the remainder fringed with whitish at the tip; bill black; feet horny-brown.

Total length, 23 inches; wing, $9\frac{3}{4}$; tail, $10\frac{1}{2}$; tarsi, $2\frac{5}{8}$.

Hab. Kafiristan.

Remark.—This species is altogether a stouter and larger bird than *Pucrasia macrolopha*.

Mr. Gould further remarked that, upon a careful examination and comparison of the Pheasants from Nepaul, which have usually been considered as identical with the *P. macrolopha*, with true examples of that species, he found them to differ so considerably, that he felt justified in characterizing the Nepalese birds as distinct, under the name of

PUCRASIA NIPALENSIS.

Forehead, cheeks, chin and lengthened portion of the crest deep shining green; hinder part of the head and the shorter portion of the crest buff, with lighter shafts, the two colours blending on the occiput; on each side of the neck an oval spot of white; feathers of the sides and back of the neck and upper part of the back brownish-black, with a narrow mark of rich chestnut down the centre, and edged with rufous or whitish; feathers of the lower part of the back brownish-black, with white shafts and edges; wing-coverts brownish-black, with white shafts and margins; scapularies broadly margined with deep reddish-buff; primaries brown on the internal web, deep buff on the outer; tertiaries pale chestnut, mottled with black along the shaft and towards the edge, which is sandy-buff; throat, centre of the breast and abdomen rich chestnut; flank-feathers brownish-black with white shafts, bordered on each side by a very fine line of chestnut, and narrowly edged with grey, the markings becoming larger and paler behind the thigh; under tail-coverts lively chestnut, with an oval spot of white at the tip of each; centre tail-feathers rufous, stained with black near the shaft, the remainder black on the inner web and at the tip, the outer webs chestnut, which colour curves round into and occupies a portion of the internal web near the tip; all fringed with white at the tips; bill black; feet horny-brown.

Total length, $20\frac{3}{4}$ inches; wing, $8\frac{1}{2}$; tail, 9; tarsi, $2\frac{1}{2}$.

Hab. Nepaul and Bhotan.

Remark.—In size this bird is the smallest of the three species of the genus, but it is by far the most highly coloured and beautifully marked; the mantle, the sides of the neck and the flank-feathers are conspicuously striated with black, chestnut and grey; the same parts in the other species being sombre in comparison.

Specimens are contained in the collection at the British Museum, in that of the East India Company, and, Mr. Gould believes, in that of the Jardin des Plantes at Paris.

2. ON THE REPRODUCTION OF THE LOST PART OF AN OPERCULUM, AND ITS PROBABLE RESTORATION WHEN ENTIRELY DESTROYED. BY DR. J. E. GRAY, F.R.S., V.P.Z.S. ETC.

It is to be expected that the operculum of a Gasteropodous Mollusk may be sometimes broken or injured, but I have never hitherto been able to find any very distinct example of the kind, so as to study how the repair of the lost part would be effected. That such an occurrence would most probably be rare, is easily explained from its situation, as the operculum is protected by the last whorl of the spire of the shell when the animal is expanded, and by the mouth when it is contracted into the cavity of the shell.

I have lately met with a very distinct example in a specimen of *Fusus* in the British Museum collection. In this specimen the apical half of the operculum has been broken off (see fig. 1), and the lost part has been renewed by an irregular roundish process, nearly of

the size of the lost part, not quite as thick as the original portion, and formed of rather irregular horny plates; the smaller or first-formed portion being in the centre of the broken line, so that the restored part bears some similarity to the annular operculum of a *Paludina*. This restoration is exactly like that which would have taken place in a shell under similar circumstances, and is a further proof of the truth of the theory which I have long advocated, that the operculum is a rudimentary valve, and is homologous to the second valve of the Bivalve Mollusks.

Fig. 1.



In examining two specimens of *Pleurotoma babylonica*, preserved in spirits, with the opercula attached, I was much surprised to observe that the opercula of the two specimens were exceedingly different in structure and belonged to two distinct modifications of that valve, one (fig. 2) being subannular, with the nucleus apical, like the other species of the genus, and the other (fig. 3) annular, with the nucleus subcentral, somewhat like the operculum of *Paludina*.

Fig. 2.



Fig. 3.



The examination of the restoration of the lost half of the operculum of the *Fusus* before referred to has solved the difficulty, and I have no doubt that one of these animals had by some accident lost its operculum, and that it had gradually restored it; commencing, as in the case of the restored part of the operculum of the *Fusus*, by a small nucleus in the centre of the opercular mantle, on the back of the foot, and gradually adding new layers round the edge of it, until it formed an annular operculum nearly of the size of the original, but differing from it in shape, being less acute in front and nearly similar in form at the two ends. A more minute examination has strengthened this theory, for the operculum of this specimen is less regularly developed than is usual in the annular operculum of the kind, and is much thinner than the normal operculum of the genus, as is the case in both these particulars with the restored part of the operculum of the *Fusus*.

This change in the formation of the operculum when it is reproduced, is just what one might have expected. The animal, when it has to form its operculum at its birth, begins its formation at the tip, and increases its size, as the animal requires a larger operculum for its protection, by the addition of new layers to the outer edge of its larger and last-formed end: but when it has to reproduce this organ, the opercular mantle having reached a certain size, it proceeds

to cover its surface with a new protection in the most easy and rapid manner, and, commencing from a more or less central spot on the surface, enlarges the surface covered by adding new matter to the entire circumference of the first-formed part; it continues this process without waiting to make the operculum as thick and solid as the one which was lost, until it reaches the size of the original, moulding itself on the opercular mantle, and adapting its form to the form of the throat of the aperture of the shell which it has to close. The change of form in the front of the restored and mended operculum is caused by the parts being moulded on the existing opercular mantle—consequently they have not the narrow front part which is found in the normal form, caused by that part having been formed when the animal had this part of a small size; and as it increases in size the whole opercular mantle moves forward, leaving the small tip of the operculum free, and useless to the animal, and therefore not necessary to be reproduced when the operculum is re-formed in the adult age of the animal.

In the British Museum collection there is also a specimen of *Cominia maculata* with the operculum almost entirely reproduced, with the same alteration of the general form and position of the nucleus. These mended or reproduced opercula are always known from the normal operculum of the animal by being more or less irregularly formed and thinner in consistence.

April 25, 1854.

Dr. Gray, Vice-President, in the Chair.

The following papers were read:—

1. NOTES ON THE HABITS OF SOME INDIAN BIRDS. PART III.
BY LIEUT. BURGESS.

Family MERULIDÆ.

Subfamily TIMALINÆ.

Genus TIMALIA.

TIMALIA MALCOLMI, Sykes. LARGE BABBler.

This Large Babbler, though not generally so common, I believe, as *Timalia grisea*, I have shot in the Deccan in the districts near the city of Ahmednuggur. It is gregarious in its habits, flying about in flocks of eight or ten. It lives much on the ground, seeking its food, which consists of grasshoppers, beetles, black and white ants, and other insects, under large trees and hedgerows, scratching up and turning over the dead leaves with its strong claws. It also feeds on grain; the stomach of one which I examined contained bajocee

seeds and the remains of black ants, of another the remains of black and white ants. This fact, I think, accounts for the habit of these birds, of scratching amongst the decayed leaves round the trunks of large trees, where both the black and white ants are sure to be found; indeed it is almost impossible to find a large tree without a colony of the former round its roots. I am not certain whether the nest and eggs in the Museum of the Zoological Society, marked as those of the Greater *Thimalia*, belong to this bird, or to *Timalia grisea*; but as I procured two or three specimens of the Large Babbler and not one of *T. grisea*, I think that there is every probability that the nest and eggs belong to this species. I believe that birds of the genus *Timalia* breed twice during the year, as I have found their nests in the months of May and October. The nest brought to me in the month of October was found in a tuft of high grass in a boggy piece of ground; it contained four eggs of a uniform rich blue, $\frac{9}{10}$ in. in length by nearly $\frac{7}{10}$ in. in width. The number of eggs does not exceed four. The nest above-mentioned was composed of coarse matted grass at the bottom, and finer bents on the sides, lined also with bents of grass; it was loosely put together.

There are the nest and eggs of another species of *Timalia* in the Museum of the Zoological Society; but not having put the bird off her nest, I am unable positively to assert to what species they belong. I believe, from the smallness of the eggs, that they probably belong to *Timalia hyperythra* or *T. hypoleuca*; but this point requires further investigation.

Subfamily ORIOLINÆ.

Genus ORIOLUS.

ORIOLUS AUREUS, Gmel. INDIAN ORIOLE or MANGO BIRD.

This is common in the Deccan, frequenting banian trees and topes of mangoes, whence its name. These birds are particularly fond of the fruit of the banian, or Indian fig; the gizzard of one which I shot was full of the seeds of this small fig. The Indian Oriole begins to breed in the month of June. A pair of these birds built their nest on the small forked branches of a flowering tree in my garden at Ahmednuggur. The nest was composed of various fibrous substances, amongst which pieces of hemp appeared to predominate; with this two of the branches were bound together; some fragments of part of a letter which had been torn up and thrown away were inserted; the handwriting on the paper I easily recognized as that of a lady at the station. The nest, in its position, and in the manner in which it was attached to the boughs, was much like that figured by Mr. Yarrell in his work on British Birds as the nest of the Golden Oriole. The nest, I believe, contained four eggs, of a white ground with claret-coloured spots. This nest, with the eggs, and a pair of the old birds, are in the possession of the Zoological Society.

2. NOTICE OF A NEW INDIAN SWALLOW.
 BY FREDERIC MOORE, ASSIST. EAST IND. COMP. MUSEUM.

(Aves, Pl. LXIII.)

The subject that I beg to lay before the Meeting this evening, is a new form belonging to the family *Hirundinidæ*, lately collected in Nepal and presented to the Museum of the East India Company by B. H. Hodgson, Esq., which is allied to, but certainly distinct from, the genus *Chelidon*, and for which the following anagrammatic name is proposed.

DELICHON (nov. gen.).

Gen. Char. Bill short, thick, robust, gape rather wide, the culmen rounded, the nostrils basal, lateral and rounded. Wings rather long, with the first quill the longest. Tail short, and emarginated or nearly even at the end. Tarsi longer than the middle toe, and clothed with plumes. Toes long and clothed with plumes, the inner shorter than the outer; the claws moderate and curved.

Type, *D. Nipalensis*, Hodgs. n. sp. (Pl. LXIII.)

Spec. Char. Top of the head, chin, cheeks, ear-coverts, nape, back, upper and under tail-coverts, fine glossy black; wings black, paler beneath, the upper coverts fringed with glossy black, the under coverts dusky black; tail black, fringed on the external webs with glossy black; a band of white across the rump; throat, breast, abdomen, lower part of flanks and vent white, upper part of flanks black; tarsi and toes covered with white plumes; claws pale flesh-colour; bill black.

Length from tip of the bill to the end of the tail, $3\frac{3}{4}$ inches; of wing, $3\frac{5}{8}$; of tail, $1\frac{5}{8}$; bill to front, $\frac{3}{16}$; to gape, $\frac{7}{16}$; height from chin to front, $\frac{1}{8}$; breadth at front, $\frac{3}{20}$; tarse, $\frac{7}{16}$; middle toe and claw, $\frac{9}{20}$; hind toe, $\frac{7}{20}$.

Hab. Nepal. (No. 963. Hodgs. Catal.)

This interesting bird differs from the type of the genus *Chelidon* by its smaller and more robust bill and by its shorter and even tail; the wings also are shorter. From the genus *Cotyle* it is at once distinguished by its plumed feet.

3. NOTICE OF SOME NEW SPECIES OF BIRDS CONTAINED IN THE
 MUSEUM OF THE HON. EAST INDIA COMPANY.

BY FREDERIC MOORE, ASSIST. EAST IND. COMP. MUSEUM.

Family MERULIDÆ, Vigors.

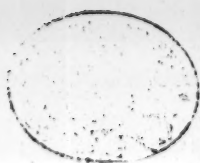
Subfamily TIMALINA, Vigors.

Genus PYCTORHIS, Hodgson (1844). *Chrysomma* (Blyth),
 Hodgson (1845).

1. PYCTORHIS LONGIROSTRIS, Hodgson.

Forehead, crown, nape, back, rump, upper tail-coverts and tail rufous-brown, deepest on the crown, wings and tail, the last being





distinctly rayed; chin, throat, base of lower mandible, middle of belly and vent white; ear-coverts, sides of the neck and breast pale rufescent, brightening on the flanks, thighs and under tail-coverts; under wing-coverts also rufescent; bill black, yellowish beneath at base; legs pale horny.

Length, $8\frac{1}{4}$ inches; of wing, $2\frac{3}{4}$; tail, $3\frac{1}{4}$; bill to frontal plumes, $\frac{5}{8}$; to gape, 1 inch; height from chin to front, $\frac{2}{10}$; tarse, 1 inch; middle toe and claw, $1\frac{1}{10}$; central and lateral ditto, $\frac{7}{10}$; hind ditto, $\frac{7}{10}$.

Hab. Nepal. (No. 892. Hodgs. Catal.)

This bird may be distinguished from *Pyc. sinensis* (better known under the name of *Timalia hypoleuca*) by its larger size, by the lengthened bill, the rufescent colour of the under parts, and by the absence of white before the eye. It may possibly be the species noticed by Mr. I. W. Frith, in the 'Journ. As. Soc. Beng.' xiii. p. 370, as being found in Bengal, which he states "differs from the common species in being about half larger."

I may here notice, in connexion with this genus, that Mr. Hodgson, in 'Proc. Zool. Soc.' 1845, p. 24, refers his genus *Pycutorhis* only to *sinensis*, and not to the bird named *rufifrons*, which is there described as an *Actinodura*, it being synonymous with the species previously described by Mr. Gould under the name of *Actinodura Egertoni*.

Family SYLVIADÆ, Vigors.

Subfamily SYLVIANA, Vigors.

Genus HOREITES, Hodgson.

2. HOREITES MAJOR, Hodgson.

Above olive-brown, ruddier on the wings; tail rounded, more of a dusky-brown, with the outer webs fringed with olive-brown; cap red-brown; a yellowish-ferruginous superciliary streak, extending over the ear-coverts; upper part of the latter ruddy-brown, lower ashy; throat, sides of neck, centre of breast and abdomen ashy-white; sides of the breast and flanks olive-brown; bill dark horn-colour, yellowish at base beneath; feet also yellowish.

Length, 5 inches; of wing, $2\frac{1}{2}$; tail, $2\frac{2}{10}$, outer feather $\frac{1}{2}$ an inch shorter than the middle; bill to front, $\frac{3}{8}$; to gape, $\frac{5}{8}$; tarsus, $\frac{9}{10}$; middle toe and claw, $\frac{7}{10}$; inner ditto, $\frac{5}{12}$; outer ditto rather more than $\frac{1}{2}$ an inch.

Hab. Nepal. (No. 946. Hodgs. Catal.)

This species may easily be distinguished by its greater size, and larger bill, the wings being much longer, though rounded as in the other species, and by the nearly total absence of ash-colour on the under parts; the feet also are much longer and stronger.

Genus ABRORNIS, Hodgson.

3. ABRORNIS POLIOGENYS, Blyth.

Culicipeta polioGENYS, Blyth, J. A. S. Beng. xvi. p. 441 (1847).

Rhipidura polioGENYS, G. R. Gray, Gen. of Birds, iii. App. p. 12.

Hab. Darjeeling, Nepal. (No. 920. Hodgs. Catal.)

Head and nape, base of lower mandible and ear-coverts dark ash-grey, the loreal feathers tipped with greyish-white; round the eye a clear white ring; back, rump and shoulders bright olive-green; wings dusky black, margined with olive-green, the greater coverts tipped with whitish-yellow; throat greyish-white, the rest of the under parts clear yellow; tail dusky on the six central feathers, which are margined with olive-green, the three outer being greenish-dusky on the terminal half of the outer web, the basal half with the whole of the inner web being white; upper mandible blackish horn-colour, lower yellowish; feet yellowish horn-colour.

Length about $4\frac{1}{4}$ inches; of wing, 2 inches; tail, $1\frac{3}{4}$; bill to front, $\frac{3}{16}$; to gape, $\frac{1}{2}$ an inch; and tarse the same.

"This species is nearly allied to *Abrornis xanthoschistos*, Hodgs., from which it differs in having the cheeks and ear-coverts, with the feathers commencing from the base of the lower mandible, of the same ash-grey colour as the head, and the throat greyish-white, instead of these parts being bright yellow as in that species."

4. ABRORNIS AFFINIS, Hodgson †.

This species is closely allied to *A. polioGENYS*, but differs from it in having the lores, base of lower mandible, lower portion of the ear-coverts, and the chin and throat, the same bright yellow as the rest of the under parts; the feathers of the crown are pale shafted, which is not the case in *polioGENYS*; the tail is pale dusky, the two outer feathers only being white on the apical portion of the inner web, the basal portion of which is dusky; the outer web in both is pale dusky green; the other ten are fringed with greenish on the outer web. The wing in *affinis* is a quarter of an inch longer, but has the same markings; the tarsus is also longer by a tenth of an inch. Other characters agree in both species. The bill in this and *polioGENYS* is broader than in *A. xanthoschistos*, Hodgson.

Hab. Nepal. (No. 920*. Hodgs. Catal.)

5. ABRORNIS ALBOGULARIS, Hodgson.

Forehead, lores, over and under the eyes to nape, and ear-coverts brightish ferruginous, the crown being dusky ferruginous, passing to yellowish olive-green on the back and shoulders; the rump yellowish; wings black, margined with the colour of the back; tail pale dusky greenish, edged exteriorly throughout with yellowish-green; throat and base of lower mandible white, the feathers black at base; breast bright yellow; abdomen white, vent yellowish; bill

† No. 920*, to distinguish it from 920 of Mr. Hodgson's Catalogue.

horny, paler beneath; feet pale horny; the rictorial bristles black, strong, nearly as long as the bill.

Length, $3\frac{1}{2}$ inches; of wing, $1\frac{3}{4}$; the first quill $\frac{1}{2}$ an inch shorter than the second; third $\frac{7}{10}$ ths longer than the first; fourth, fifth and sixth nearly equal, the fifth being the longest; tail, $1\frac{1}{2}$ inch; bill to frontal plumes, $\frac{3}{12}$; to gape, $\frac{5}{12}$; tarsus, $\frac{6}{10}$; middle toe and claw, $\frac{5}{12}$; hind ditto, $\frac{3}{8}$; tarsus and hind claw strong.

Hab. Nepal. (No. 936. Hodgson's Catal.)

4. ON RUNCINA HANCOCKI.

BY DR. J. E. GRAY, F.R.S., V.P.Z.S. ETC.

When in company with Mr. William Thompson, I observed *Runcina Hancocki* in considerable abundance in the pools left between the rocks at low tide in Belmont Cove, Weymouth, but only on the tufts of *Hypnea purpurascens* which were infested with *Diatomaceæ*, which induces me to believe that they feed on these parasitic plants. I brought several of them to London, and have since sent some to Mr. Alder, who verified the determination. Messrs. Alder and Hancock (Ann. and Mag. Nat. Hist. xviii. 289. t. 4), when they first described the animal, referred it to the genus *Limapontia*, order *Inferobranchiata*. Mr. Edward Forbes (Brit. Moll. iii. 611. t. CCC) formed it into a genus, placed provisionally at the end of the *Eolididæ*, observing that in all probability it represented a distinct family.

The examination I have been able to bestow on the animal induces me to agree with Mr. Forbes on this point, and I should be inclined to arrange the *Runcinidæ* in the order *Pleurobranchiata*, near *Bullidæ* and *Pleurobranchidæ*. It has the armed gizzard and the gills of *Aplysiadæ*. To the excellent description of Messrs. Alder and Hancock, I may add, that the tongue-membrane is covered with three longitudinal series of large transparent teeth, like that of some of the *Bullidæ*. The central tooth is broad, transverse, with the upper edge reflexed, notched in the middle, and with three unequal denticles on each side of the middle line. The lateral teeth are rather large, versatile, conic, arched, compressed, with an acute tip. The prehensile collar is horny, large, rugose, with roundish tubercles. I am somewhat inclined to consider the front part of the back, enclosing the eyes, which are rather bent up on the sides and separated from the other part of the back by a paler colour, as the frontal lobe of the *Bullidæ*, which is united at this paler part to the true mantle, giving the animal the appearance of having a single oblong shield-like mantle. The mantle is very hard and tough, but without any appearance of a shell or of spicula.

5. ON THE GENUS MODIOLARCA.

By DR. JOHN EDWARD GRAY, F.R.S., P.B.S., V.P.Z.S. ETC.

In the Synopsis of the British Museum for 1840, pp. 144, 155, I established a family of bivalve shells under the name of *Crenellidæ*, for the genera *Crenella* and *Modiolarca*, taking the character of the family from the animal of *Modiola trapezina*, the type of the genus *Modiolarca*, the only one that had then come under my examination. The following were the characters given:—

"The family of *Crenellidæ* chiefly differs from the former (*Mytilidæ*) in the mantle lobes being united together so as to leave only two posterior holes for the entrance and exit of the water, and a slit for the foot and beard. The hinge-margin is denticulated at each end, and the umbo is nearly central."

Shortly after, Mr. Alder described the animal of the British *Crenella undulata*, and found that the mantle was nearly as much open as that of the *Modiola*, and complained of the inaccuracy of the description; the fact being, that the two genera had very different animals, and that *Crenella* had been wrongly referred to the group, and taken as the patronymic of it.

I have lately had an opportunity of verifying my description of the animal of *Modiolarca*, and find that it exactly agrees with the above character, and that it has a very peculiar-formed foot, most resembling that found in some *Arcidæ*, which caused me to call the genus *Modiolarca**.

The following is a more particular description of the animal of the genus, which must be considered as the type of a peculiar family, called

MODIOLARCADÆ.

Crenellidæ, Gray, 1840.

Genus MODIOLARCA, Gray, 1840.

Mantle lobes united. Siphonal apertures two, distinct; anal moderate; branchial very large, inferior, simple edged; pedal aperture small, basal, subanterior. Gills four, thick, dependent, subtrigonal, truncated in front, narrow, produced and united together behind. Lips four, moderate. Palpi obsolete. Foot oblong, base truncated, lower end lanceolate, acute in front, with a subposterior, central cavity for the byssus.

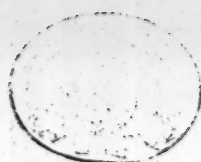
Shell equivalve, oblong, thin; umbo subanterior. Hinge-teeth none, or rudimentary. Cartilage linear, external. Periostraca polished, hard.

The animal lives attached to floating sea-weed.

Modiolarca trapezina† = *Modiola trapezina*, Lamk. Hist. A. s. V. n. 17. ed. 2. vii. 24; Delessert, Icon. t. 13. fig. 7; Hanley, Cat. Recent Shells, 237.

* Two genera have been made out of this word. Dr. Beck when in this country made a note that I had called the genus *Modiolarca*; but he appeared to have read it *Modiolaria*, and that name has been used for it. The latter name is now chiefly used for the more oblong *Crenella*.

† Since the above was read, I find that M. Valenciennes has considered this shell as the type of a new genus, *Phascolicama* (see Gay's Chili, 1854); and Mr. Gould has, more lately, formed a genus for it, under the name of *Gaimarda*.—J. E. GRAY.





J. Wolf, lith.

M & N. Hanhart, Tm.

(1) TYRANNULA PHENICURA *Scoter*.

(2) TYRANNULA ORNATA *Saffronay*.

es. LXVI.



Hanhart, Imp.



May 9, 1854.

Dr. Gray, Vice-President, in the Chair.

The following papers were read :—

1. DESCRIPTION OF A NEW SPECIES OF HUMMING BIRD,
FROM QUIJOS. BY JOHN GOULD, F.R.S. ETC.

Mr. Gould exhibited a Humming Bird, lately received from Quijos, which is very nearly allied to *Threnetes leucurus*, but which differs from that species in its larger size, and in having those parts of the tail-feathers of a deep fawn-coloured hue which are white in *T. leucurus*; precisely, in fact, the difference which occurs between *La-fresnaya flavicaudata* and *L. Gayi*. For this bird Mr. Gould proposed the name of

THRENETES CERVINICAUDA.

Head, all the upper surface, upper wing-coverts, two central tail-feathers, sides of the neck, breast and flanks shining olive-green; wings purplish-brown; lateral tail-feathers deep fawn-colour, stained on the apical half of the outer margin and the tip of the outer feather with dark brown; a crescent of the same, but of a much paler hue, at the tip of the next; a still fainter mark of the same colour near the tip of the external web of the third; and a nearly obsolete mark, of a similar tint, in the same situation on the fourth; lores and ear-coverts brown; on the chin and throat a lengthened triangular mark of black, bounded on either side by a narrow line of greyish-white, and below by a broad band of deep sandy-buff crossing the throat; centre of the abdomen greyish-buff; under tail-coverts olive, narrowly edged with greyish-buff; bill black, with the cutting edge of the upper mandible and the basal three-fourths of the under one pearly-white; feet yellow.

Total length, $4\frac{5}{8}$ inches; bill, $1\frac{7}{8}$; wing, $2\frac{3}{8}$; tail, $1\frac{1}{2}$.

Hab. Quijos, in Ecuador.

2. LIST OF A COLLECTION OF BIRDS RECEIVED BY MR. GOULD,
FROM THE PROVINCE OF QUIJOS IN THE REPUBLIC OF
ECUADOR. BY PHILIP LUTLEY SCLATER, M.A.

(Aves, Pl. LXVI. and LXVII.)

Among the many novelties in ornithology lately received by Mr. Gould from different parts of the world, is a small but valuable collection of birds from the province of Quixos, or Quijos, in the republic of Ecuador. This country, which lies on the eastern slope of the Andes, where the Rio Napo and other adjoining tributaries of the mighty Amazon take their rise, is a very interesting locality to those who study South American ornithology, being intermediate between

New Grenada—whence so many new forms have lately been sent to Europe—on the one side, and the wood regions of Peru and Bolivia, where Von Tschudi and D'Orbigny pursued their laborious researches in natural history, on the other.

Mr. Gould having most liberally placed this collection in my hands for examination, I have drawn up a complete list of the species as far as I can determine them satisfactorily, in order to show the character of the ornithology of this country—observing that Mr. Gould is expecting fresh consignments from the same quarter, which will doubtless much further increase our knowledge of the fauna of this highly interesting region.

HIRUNDINIDÆ.

1. *Acanthylis albicollis* (Vieill.).

Hirundo albicollis, Vieill. Nouv. Dict. xiv. 524 (1817).

Hirundo collaris, Wied, Reise nach Bras. i. p. 75 (1820), et Beit. z. Nat. iii. p. 344.

Acanthylis collaris, Gray's Gen. i. p. 55. sp. 6.

This fine spine-tailed Swift seems generally distributed over the northern portion of the continent. It was observed by Prince Max. of Neuwied in many provinces of Brazil, by Schomburgk in British Guiana, and Sir William Jardine has examples transmitted by Professor Jameson from the vicinity of Quito. Mr. Gosse has recorded its appearance in Jamaica.

TROGONIDÆ.

2. *Trogon melanopterus*, Sw. (Gould's Mon. pl. 10, 11).

3. *Calurus auriceps*, Gould.

BUCCONIDÆ.

4. *Bucco macrorhynchus*, Gm.

5. *Bucco collaris*, Lath.

6. *Malacoptila fusca* (Gm.).

GALBULIDÆ.

7. *GALBULA CHALCOTHORAX*, Slater, sp. nov.

G. læte cupreo-viridis; capite cærulescente; pectore læte violaceo; macula gulari triangulari alba: ventris plumis basi nigricantibus, apice albis; rostro pedibusque nigris.

Long. tota 8·3, alæ 3·3, caudæ 3·5, rostri 1·5.

Obs. Similis *G. leucogastra*, sed major et pectore violaceo-cuprescente.

This is an immature bird of a species closely resembling *G. leucogastra*, but of larger size and with a bright violet or purple tinge on the breast, which does not appear in examples of the older species.

CÆREBINÆ.

8. *Dacnis cayana* (L.) (Pl. Enl. 669. fig. 1).

9. *Dacnis angelica*, De Fil. (Pl. Enl. 669. fig. 2).

10. *Dacnis atricapilla* (V.).

TROCHILIDÆ.

Mr. Gould has himself determined the species of *Trochilidæ* that occur in the present collection, as also the Trogons and Toucans.

11. *Phaëthornis striigularis*, Gould (Mon. Trochil. viii. pl. 15).
A new species allied to *P. intermedia*.

12. *Phaëthornis superciliosus* (Linn.)?

13. *Threnetes cervinicauda*, Gould.

A new species resembling *T. leucurus*, but with the tail-feathers fawn-coloured where they are white in the other species (see p. 109).

14. *Thalurania viridipectus*, Gould.

15. *Chrysuronia cenone* (Lesson).

16. *Iolæma Schreibersi* (Bourc.).

Mr. Gould has made a new generic name for this bird, which has been placed by Prince Charles Bonaparte in his 'Conspectus Trochilorum' among the *Campylopteri*.

17. *Cæligena typica*, Bp.

18. *Gouldia Langsdorfi* (Vieill.).

DENDROCOLAPTINÆ.

19. *Xiphorhynchus procurvus* (Temm.) (Pl. Col. 28. fig. 4).

20. *Dendrornis guttata* (Licht.).

Nasica guttatus, Lafr. Rev. Zool. 1850, p. 385.

These are both Brazilian forms.

MENURINÆ.

21. *Scytalopus griseicollis* (Lafr.).

Merulaxis griseicollis, Lafr. Rev. Zool. 1840, p. 103.

A Bogota bird.

MNIOTILTINÆ.

22. *Setophaga ruticilla* (L.).

This North American species is one of the few Passeres of that country that extend all through Central America into the northern portions of the southern continent. It is included by Schomburgk among the birds of British Guiana.

23. *Myiodiactes canadensis* (L.).

Described from Bogota by the Baron de la Fresnaye as a new species under the name of *Setophaga nigrocincta* (Rev. Zool. 1843, p. 292), but, as afterwards acknowledged by the same author, quite identical with North American specimens.

24. *Sylvicola Blackburniæ*, juv.

Also a common U. S. species.

TURDINÆ.

25. *Turdus minimus*, Lafr. (Rev. Zool. 1848, p. 5).

The Prince Charles Bonaparte has reunited this bird to the *minor* of the U. S., from which M. de la Fresnaye considered it distinct.

FORMICARIINÆ.

26. *Thamnophilus stellaris*, Spix ? (Av. Bras. ii. p. 27. pl. 36. fig. 2).

♂ *cinereus* : pileo dorsoque summo et medio nigris, hujus pennis basi niveis : alarum tectricibus apice maculis rotundis, albis.

♀ *supra pallide cinereus* : subtus brunneus, lateribus cinerascens : alis externe rufis.

Long. tota 5·2, alæ 3·0, caudæ 1·6.

This is a typical *Thamnophilus* with a strong thick bill. There are several examples of it in the Paris Museum in different states of plumage, and it was from examining them that I was enabled to decide that the female above described (which is in my own collection) belongs to this species.

27. *Cymbilanius lineatus* (Leach), ♂ & ♀.

28. *Formicivora cærulescens* (Vieill.), Menetr. Mon. t. 6. fig. 1 & 2. p. 499 (?).

29. *Pyriglena quixensis* (Cornalia).

Thamnophilus quixensis, Corn. Vert. Syn. p. 12*.

P. atra, abdomine cinerascens : tectricibus alarum maculis rotundis, albis terminatis : dorsi plumis laxis, elongatis, basi albis : rectricibus apice albis.

Long. tota 4·5, alæ 2·1.

30. *Pyriglena rufiventris* (Cornalia).

Thamnophilus rufiventris, Corn. Vert. Syn. p. 12.

P. atra, abdomine late castaneo : alarum tectricibus maculis rotundis, albis terminatis : dorsi plumis laxis, elongatis, basi albis : rectricibus graduatis, harum extimis apice albis ; rostro pedibusque nigris.

Long. tota 4·5, alæ 2·1, caudæ 2·0.

I have little doubt that I have correctly referred these two birds to the species described by Dr. Cornalia, the types of which I had an opportunity of examining through his kindness when last at Milan. Although they closely resemble one another, except in the colouring of the belly, there is so much difference in the form of the bill in the two specimens in this collection, that I think it hardly possible that, as suggested by Dr. Cornalia, the variations between them can be due to age or sex, and I believe them distinct though nearly allied species. I have placed them in the genus *Pyriglena*, with the type of which, *P. domicella*, they agree in several respects ; particularly in the lax and elongated feathering of the lower back—a curious structure occurring in several groups of birds, *Pycnonotus*, *Philenotoma*, &c., and which has not yet, as far as I am aware, been fully explained. In this same genus I should also place that peculiar form, the *Myiothera nudiceps* of Cassin (Proc. Ac. Sc. Phil. 1850, p. 106),

* Dr. Cornalia's paper, which is little known in this country, is entitled "Vertebratorum Synopsis in Museo Mediolanense exstantium quæ per novam orbem Caietanus Osculati collegit annis 1846, 47, 48 speciebus novis vel minus cognitis adjectis necnon descriptionibus atque iconibus illustratis : Modoetiæ 1849."

Pyriglena nudiceps, mihi, of which Mr. Gould has a specimen from Panama, and the MM. Verreaux have lately received examples from Santa Martha in New Grenada.

There are several other birds of this family in the collection that I cannot make out. A modern monograph of the group would be a great addition to our knowledge of South American ornithology.

31. *Conopophaga aurita* (Linn.) (Pl. Enl. 822).

Agrees with Cayenne specimens.

TYRANNINÆ.

32. *Pyrocephalus rubineus* (Bodd.), Pl. Enl. 675. fig. 1.

33. *Todirostrum* —?, —.

34. TYRANNULA PHENICURA, Sclater, sp. nov. (Pl. LXVI. 1).

T. flavo-olivacea: dorso imo et ventre flavissimis: capite nigro-cinerascente, crista media flava utrinque nigra: fronte lorisque albis: gula cinerea: alis nigricantibus, tectricibus majoribus et secundariis rufescente limbatis: cauda unicolore clare rufa.

Long. tota 4·0, alæ 2·5, caudæ 1·7.

Obs.—Similis *T. ornata*, Lafr. Rev. et Mag. de Zool. 1853, p. 57, (Pl. LXVI. 2), sed cauda clare rufa et secundariis rufescente marginatis sane diversa.

35. *Elania cayennensis* (Linn.).

TÆNIOPTERINÆ.

36. *Corvus flicauda* (Spix).

TITYRINÆ.

37. *Tityra marginata* (Licht.).

AMPELIDÆ.

38. *Pipreola Sclateri* (Cornalia).

Euchlornis Sclateri, Corn. Jard. Cont. to Orn. 1852, p. 133. pl. 101; Rev. et Mag. de Zool. 1853, p. 104. pl. 4.

Dr. Cornalia, to whom I owe many thanks for the honour he has done me in calling this elegant bird after my name, rightly insists on the claims of priority of De Filippi's genus *Euchlornis* over Lafresnaye's *Pyrrhorhynchus*. But both these names must, I think, give way to Swainson's term *Pipreola*, established in 1838 (Animals in Menag. p. 357), the type of which, his *P. chlorolepidota*, seems closely allied to D'Orbigny's *Ampelis viridis*. I was rejoiced to see this bird in the present collection, as it clears up a mystery about its *habitat*, which Dr. Cornalia supposed to be Peru or Bolivia. But I have now no doubt that the type specimen in the Museo Civico at Milan, which is the only other I have seen, came, as the present, from the province of Quixos, and was probably collected there by the enterprising Italian traveller Osculati.

39. *Pipreola Riefferi* (Boiss.).

Ampelis Riefferi, Boiss. Rev. Zool. 1840, p. 3.

No. CCLXVII.—PROCEEDINGS OF THE ZOOLOGICAL SOCIETY.

40. *Laniusoma arcuatum*, Swains.

This generic name of Swainson's must be used as prior by several years to *Ptilochloris* of the same author. M. de la Fresnaye has recently reunited his *Ptilochloris remigialis* to the type species *arcuata*, but I am sure that there are two birds confounded under this name, though I have not yet seen enough specimens to enable me to distinguish them accurately. The *P. rufo-olivaceus* and *virescens* of Lafresnaye, described in the *Revue Zoologique*, 1838, p. 238, do not, I think, belong strictly to this genus. They have both been previously named by Prince Maximilian of Neuwied, the first as *Muscicapa turdina*, *Beit. iii.* 817, the second as *Muscicapa virescens*, *ib.* p. 802.

41. *Pipra Isidori*, Sclater, *Rev. et Mag. de Zool.* 1852, p. 9; *Cont. to Orn.* 1852, pl. 100. fig. 1. p. 132.

42. *Pipra coronata*, Spix, *Av. Bras.* ii. pl. 7. fig. 1.

(*P. cyaneocapilla*, Hahn. *P. herbacea*, Spix, ii. pl. 8 a. fig. 1 ♀.)

I believe Spix's name is prior to Hahn's. The *Pipra herbacea* of the former (of which I have seen the type in the Munich Museum) is certainly a female of this species.

43. *Pipra leucocilla*, Linn.

44. *Chiromachæris gutturosa* (Desm.) Tang. & Man. pl. 58.

I have my doubts whether this bird is really separable from *Pipra manacus*, as made out in Bp.'s *Consp.* p. 171.

GARRULINÆ.

45. *Cyanocorax yncas*, Bodd. (*Pl. Enl.* 625. *Corvus yncas*, Bodd., *Corvus peruvianus*, Gm.).

STURNIDÆ.

46. *Cacicus persicus* (L.).

47. *Gymnomystax mexicanus* (Linn.) (Bp. *Consp.* p. 431).

TANAGRINÆ.

48. *ARREMON SPECTABILIS*, Sclater, sp. nov. (*Pl. LXVII.*)

A. supra aurescenti-olivaceus: capite nigro, vitta verticali cinerea: superciliis albis: axillis lætissime croceis: subtus albus; mento summo et torque gutturali nigris; lateribus cinerascentibus; rostro flavo.

Long. tota 5·8, alæ 2·8, caudæ 2·5.

This beautiful *Arremon* appears to me to be quite new. It comes nearest perhaps to the *A. aurantirostris* of Lafr. (*Des Murs, Icon. Orn.* pl. 55), but that has a very broad pectoral band, this a narrow one. Besides, the deep saffron, almost chestnut colour of the bend of the wing is of itself sufficient to distinguish it from all the other species of the genus.

A second example of this bird is in a collection lately received by Sir William Jardine from the same locality.

49. *Pyranga* —? — ♀.

A bad skin of a female or immature bird.

50. *Ramphocelus* —? —.

A female of one of the species allied to *R. jacapa*.

51. *Tachyphonus luctuosus*, D'Orb. & Lafr.

52. *Tanagra caelestis*, Spix, Av. Bras. ii. p. 42. pl. 55. fig. 2.

Readily distinguished from the other *Bishop* Tanagers by the silky white bar across the wing. A rare bird in collections. In the Paris museum are examples collected by MM. Castelnau and Deville at Pontobamba in June 1847.

53. *Calliste Parzudakii* (Lafr.).

54. *Calliste Schranki* (Spix).

55. *Calliste xanthogastra*, Selater.

56. *Calliste gyroloides* (Lafr.) ♀.

57. *Calliste cyanicollis* (D'Orb. & Lafr.).

58. *Calliste thalassina* (Strickl.).

59. *Calliste xanthocephala* (Tsch.).

60. *Euphonia xanthogastra*, Sund.

CAPITONIDÆ.

61. *Eubucco Bourcierii* (Lafr.).

62. *Eubucco Hartlaubi* (Lafr.).

63. *Capito peruvianus* (Cuv.).

CUCULIDÆ.

64. *Piaya cayana* (Linn.) (Pl. Enl. 211).

PSITTACIDÆ.

65. *Psittacula passerina*, Spix?

Agrees with Bogota specimens.

RAMPHASTIDÆ.

66. *Pteroglossus castanotis*, Gould.

67. *Pteroglossus flavirostris*, Fraser.

68. *Andigena nigristrostris*, Waterhouse.

RALLIDÆ.

69. *Corethrura cayennensis* (Gm.) (Pl. Enl. 368).

May 23, 1854.

Dr. Gray, Vice-President, in the Chair.

The following papers were read :—

1. NOTICE OF ALL THE KNOWN SPECIES OF THE GENUS ACCENTOR, WITH THE DESCRIPTION OF AN UNCHARACTERIZED SPECIES FROM NEPAL. BY FREDERIC MOORE, ASSIST. MUS. EAST INDIA COMPANY.

Family SYLVIADÆ, Vigors.

Subfamily ACCENTORINA, Vigors.

Genus ACCENTOR, Bechstein.

1. ACCENTOR ALPINUS, Gmelin.

Motacilla alpina, Gmel. S. N. L. i. p. 957.

Sturnus moritanus, Gmel. S. N. L. i. p. 804.

Sturnus collaris, Scop. Ann. i. p. 131. no. 192. Gmel. S. N. L. i. p. 805. Lath. Ind. Orn. i. p. 323.

Accentor alpinus, Bechst. Naturg. Deutschl. iii. p. 700. Eyton, Cat. Brit. B. p. 13. Macgill, Hist. Brit. B. ii. p. 258. Gould, Birds of Eur. t. 99. G. R. Gray, Gen. of Birds, i. p. 187; Catal. Brit. B. in B. M. p. 64. Blyth, Cat. B. Mus. A. S. Beng. p. 130. Bonap. C. G. Av. p. 305.

Le Fauvette des Alpes, Buffon.

The Alpine *Accentor*, Eyton; Yarrell.

Hab. Europe.

2. ACCENTOR NIPALENSIS, Hodgson.

Accentor nipalensis, Hodgson, J. A. S. Beng. xii. p. 958 (1843); Gray's Zool. Misc. 1844, p. 83; P. Z. S. 1845, p. 34; Cat. B. of Nepal, p. 71. G. R. Gray, Gen. of Birds, i. p. 187. Blyth, J. A. S. Beng. xv. p. 42. Bonap. C. Gen. Av. p. 305.

Accentor cacharensis, Hodgs. P. Z. S. 1845, p. 34.

The Nepal *Accentor*, Gray.

Hab. Nepal.

A. nipalensis.—"Newly-moulted adults have the upper parts nearly as in *A. modularis*, but the dark colour predominating, and the striation of the head and neck obsolete, or nearly so, these parts, with the ear-coverts and breast being of an almost uniform dark brownish-grey; throat white, spotted with dusky-black, which forms two cross-bars on each feather, their extreme tips being greyish; belly and flanks bright dark ferruginous, mingled with the hue of the breast along the middle of the former; under tail-coverts dusky, tinged with ferruginous, and laterally margined with white; the feathers of the back are greyish-brown, with broad dark centres, or they may be described as blackish, with brown lateral margins, tinged with ferruginous towards and upon the scapularies; wings dusky-black, the

tertiaries broadly margined with ferruginous, the other large alars slightly so, and all having a spot of this colour at the extremity of their outer edge; wing-coverts having a white spot at the tip of their exterior webs, and the small feathers near the bend of the wing coloured like the head; tail brownish-black, tipped with brown, the terminal spot of the inner web of each feather successively more albescent to the outermost; upper tail-coverts long, and brown with a dark central streak; bill dusky, the lower mandible yellow except at tip; legs reddish-brown. In worn plumage, the margins of all the feathers have more or less disappeared, and what remains of them is faded in hue; the conspicuous white spots on the wing-coverts, and ferruginous margins of the tertiaryes, being completely abraded, the former leaving a semicircular sinus, as if artificially cut away. The young have the clothing plumage of the usual flimsy texture, the under parts coloured like the back, with no ferruginous on the belly, the spots on the wing-coverts are larger and less purely white; and the ferruginous on the scapularies and wing-coverts dingy."

Length about 7 inches; of wing $3\frac{3}{4}$ inches; tail $2\frac{3}{4}$; bill to gape $\frac{5}{8}$ ths; and tarse $\frac{1}{8}$ ths of an inch.

This species appears to represent *A. alpinus* on the Kachar region of Nepal.

3. ACCENTOR VARIEGATUS, Blyth.

*Accentor himalayanus**, Blyth J. A. S. Beng. xi. p. 187.

Accentor variegatus, Blyth, J. A. S. Beng. xii. p. 958 (1843); Cat. B. Mus. A. S. Beng. p. 131. G. R. Gray, Gen. of Birds, i. p. 187. Bonap. C. G. Av. p. 305.

Accentor alpinus, Vieill, Gall. des Ois. t. 156 (nec Gmel.).

The Variegated *Accentor*.

Hab. Sikim; Kasouli; Nepal (No. 964, Hodgson's Catalogue).

A. variegatus.—"Forehead, crown, occiput, neck, shoulder of the wings, and rump dingy grey-brown, with an inconspicuous lighter greyish eye-streak; throat and fore-neck white, with small round spots disposed as in *alpinus*; ear-coverts streaked with fulvescent, and small loreal and infra-orbital feathers tipped with fulvous-white; gorget brown, more or less tinged with rufous, which latter brightens on the lower breast, flanks, and sides of the belly, the feathers being laterally edged with white, and some having dark streaks on the flanks posteriorly; lower tail-coverts white, with lanceolate central dusky spots; wings intricately mottled, having the anterior range of coverts dusky-black with white tips, the next or great range fulvescent-grey exteriorly at base, and dusky-black for the remainder with slight whitish tips; primaries edged with grey, secondaries with brown, and tertiaryes with fulvous; scapularies and interscapularies rufous-brown, mottled with large black terminal spots on the middle of each feather; tail dusky, having a large white spot at the tip of the inner web of each feather; bill black; legs pale reddish."

* This name was changed to *variegatus* by Mr. Blyth, as the other Indian species of this genus are also found in the Himalayas.

4. *ACCENTOR MODULARIS*, Linn.

Motacilla modularis, Linn. S. N. i. p. 329.

Accentor modularis, Bechst. Naturg. Deutschl. iii. p. 617. Eyton, Cat. Brit. B. p. 13. Macgill. Hist. Brit. B. ii. p. 251. Gould, B. of Eur. t. 100. G. R. Gray, Gen. of Birds, i. p. 187; Catal. Brit. B. in B. M. p. 65.

Sylvia modularis, Lath. Ind. Orn. ii. p. 511; Gen. Hist. vii. p. 20.

Tharrhaleus modularis, Kaup. Naturl. Syst. i. p. 137.

The Hedge *Accentor*. Selby. Yarrell.

Hab. Europe.

5. *ACCENTOR RUBIDUS*, Temm. et Schlegel.

Accentor rubidus, Temm. et Schleg. Faun. Japon. Av. p. 69. t. 32. Bonap. C. G. Av. p. 305.

The Japan *Accentor*.

Hab. Japan.

This species is closely allied to the common *A. modularis*, Linn.

6. *ACCENTOR MONTANELLUS*, Pallas.

Motacilla montanella, Pallas, It. iii. p. 695. Gmel. S. N. L. i. p. 968.

Accentor montanellus, Bechst. Naturg. Deutschl. iii. Temm. Man. d'Orn. ii. ed. p. 251. Lath. Gen. Hist. vii. p. 15. Eyton, Cat. Brit. B. p. 13. Macgill. Hist. Brit. B. ii. p. 251. Gould, Birds of Eur. t. 101. G. R. Gray, Gen. of Birds, i. p. 187.

Sylvia montanella, Lath. Ind. Orn. ii. p. 526; Gen. Hist. vii. p. 90.

Spermolegus montanellus, Kaup. Naturl. Syst. i. p. 152.

?*Accentor Temminckii*, Brandt. Bull. Sci. Acad. Imp. St. Petersb.

The Mountain *Accentor*. Gould.

Hab. Eastern portions of Europe and Asia.

7. *ACCENTOR RUBECULOIDES*, Hodgson, n. sp.

Accentor rubeculoides.—Forehead, crown, nape, ear-coverts and chin brown; infra-orbital feathers tipped with whitish; throat, sides of neck, and shoulder of wings dingy grey-brown, the feathers of the throat blackish at base; back and rump ferruginous, centred with dusky; wings dusky, margined exteriorly with ferruginous; lesser and greater wing-coverts tipped with white; tail dusky, margined exteriorly with pale ferruginous; breast and fore part of flanks ferruginous, the latter streaked with dusky; belly white, tinged with ferruginous on the flanks posteriorly, vent, and margins of the under tail-coverts; the latter centred dusky. Bill blackish; feet pale reddish.

Length 6 inches; of wing 3; tail $2\frac{1}{2}$; bill to front $\frac{4}{10}$ ths; to gape $\frac{1}{2}$ inch; tarses $\frac{3}{4}$.

The Robin *Accentor*.

Hab. Nepal (No. 970, Hodgson's Catalogue).

This fine undescribed species was lately presented by B. H. Hodgson, Esq., to the Museum of the Hon. East India Company.

8. *ACCENTOR STROPHIATUS*, Hodgson.

*Accentor strophiatu*s, Hodgs. J. A. S. Beng. xii. p. 959; Gray's Zool. Misc. 1844, p. 83; P. Z. S. 1845, p. 34; Cat. B. of Nepal, p. 72. G. R. Gray, Gen. of Birds, i. p. 187. t. 51. Blyth, Cat. B. Mus. A. S. Beng. p. 131. Bonap. C. G. Av. p. 305.

The rufous-breasted *Accentor*, Gray.

Hab. Himalayas.

*A. strophiatu*s.—“Upper parts much as in *A. modularis*, but the colours brighter and more contrasted, and the crown and neck uniform with the back; a broad eye-streak, the first of which is white to beyond the eye, surmounting a ferruginous streak continued backward to the occiput; a semicircle of the same surrounds the dusky ear-coverts, and the entire breast is also ferruginous; throat white, with dusky spots, forming a line descending from each angle of the lower mandible; belly and lower tail-coverts white with dusky streaks; wing-feathers dusky, margined with ferruginous, with an albescent spot at the tip of each covert; tail brownish, with dull rufous outer margins; bill black; legs reddish-brown.”

Length about $5\frac{1}{2}$ inches; of wing $2\frac{1}{4}$ to $2\frac{1}{2}$; tail $2\frac{1}{8}$ to $2\frac{1}{4}$; bill to gape $\frac{5}{8}$ ths; and tarse $1\frac{3}{8}$ ths of an inch.

9. *ACCENTOR IMMACULATUS*, Hodgson.

Accentor immaculatus, v. *nipalensis*, Hodgs. Gray's Zool. Misc. 1844, p. 83; P. Z. S. 1845, p. 34; Cat. B. of Nepal, p. 71 et App. p. 153.

Accentor mollis, Blyth, J. A. S. Beng. xiv. p. 581 (1845); Cat. B. Mus. A. S. Beng. p. 131. G. R. Gray, Gen. of Birds, iii. App. p. 8. Bonap. C. G. Av. p. 306.

The unspotted *Accentor*.

Hab. Nepal; Sikim.

A. immaculatus.—“Upper parts a rich brown, passing into pure dark ash-colour on the head and neck, and into maroon on the scapularies and tertiaries, and less deeply on the hind part of the back; coverts of the secondaries pure dark-grey, those of the primaries, with the winglet black, as also the primaries, these last having their unmarginated portion externally bordered with pale-grey; tail greyish dusky; frontal feathers to above the eyes margined with white, the lores blackish, and the entire under parts slightly embrowned deep ash-colour as far as the vent, which is pale and tinged with ferruginous, the under tail-coverts being deeper ferruginous, and the hind portion of the flanks dark ferruginous; bill blackish; feet fleshy grey; iris straw-colour.”

Length about 6 inches; tail $2\frac{1}{2}$; wing $3\frac{1}{4}$; bill to frontal feathers $\frac{5}{16}$ ths; and tarse $\frac{3}{4}$ of an inch.

10. *ACCENTOR HUTTONI*, Moore.

Accentor atrogularis, Hutton (nec Brandt?), J. A. S. Beng. xviii.

p. 811 (1849). Blyth, Cat. B. Mus. A. S. Beng. p. 131. Bonap. C. G. Av. p. 305.

Hutton's *Accentor*.

Hab. Simla; Afghanistan. In Mus. East Ind. Company.

A. Huttoni.—"General colour above brown, the feathers centred dusky, more rufescent on the back, greyer on the nape, rump and upper tail-coverts; crown darker; a broad line above the superciliar streak, with the ear-coverts and throat dusky-black, the latter divided from the ear-coverts by a pale line proceeding from the base of the lower mandible, and this with the entire supercilium and the breast, of a uniform light rufescent sandy hue; belly whitish, the flanks streaked with dusky; wing-coverts slightly tipped albescent, forming slight cross-bands. Bill dusky, yellowish towards gape, and feet pale." "Irides brown."

Length 6 inches; of wing $2\frac{7}{8}$ ths; tail $2\frac{1}{2}$; bill to gape $\frac{9}{16}$ ths; and tarse $\frac{3}{4}$ th of an inch."

11. *ACCENTOR ALTAICUS*, Brandt*.

Accentor Altaicus, Brandt, Bull. Sci. Acad. Imp. St. Petersb. (1841?). G. R. Gray, Gen. of Birds, i. p. 187. Bonap. C. G. Av. p. 306.

The Altaic *Accentor*.

Hab. Siberia.

12. *ACCENTOR ATROGULARIS*, Brandt.

Accentor atrogularis, Brandt, (nec Hutton?), Bull. Sci. Acad. Imp. S. Petersb. (1841?). G. R. Gray, Gen. of Birds, i. p. 187.

The Black-throated *Accentor*.

Hab. Siberia.

"The species of this genus," remarks Mr. Yarrell, in his admirable work on British Birds, "are very limited in number, only five, I believe, being at present known; two are figured in this work as belonging to England, two others are found in the north and east of Europe†, and a fifth has been received from the Himalaya mountains." The discovery of six distinct species in India, which have mostly been collected in Nepal by B. H. Hodgson, Esq., one from Japan, and the two described by Dr. Brandt, making in all twelve species, is accordingly no small accession to the known species of this interesting genus.

* Not having been so fortunate as to examine the descriptions of Dr. Brandt's species, I am unable to describe them in this notice.

† One of which species is in all probability the so-called *Accentor Calliope* of Temm. v. *Calliope Camschatkensis*, Gmel., which, certainly, has no affinity to *Accentor*.

June 13, 1854.

Dr. Gray, Vice-President, in the Chair.

The following papers were read :—

1. DESCRIPTIONS OF SIX NEW SPECIES OF AURICULACEA,
FROM THE COLLECTION OF H. CUMING, ESQ.

By Dr. L. PFEIFFER.

1. AURICULA TURRITA, Pfr. *A. testa imperforata, oblongo-turrita, solida, striis longitudinalibus et transversis granulato-decussata, sub epidermide fusca, parum nitente alba; spira elongata, apice obtusula, sæpe erosa; anfr. 7, infra suturam turgidis, celeriter accrescentibus, ultimo spiram æquante, basi subattenuato; apertura angusta, acuminato-ovali, intus lactea; plicis parietalibus 2, superiore antice nodiformi, introrsum attenuata, altera oblique extrorsum producta; plica columellari duplicata, vix obliqua; perist. recto, acuto, intus callo crasso, albo aucto.*

Long. 50, diam. 16 mill.

Hab. Philippine Islands.

This species belongs to the genus *Ellobium* of H. and A. Adams, not of Bolten, who comprises under that name species of *Bulimus*, *Auricula*, Lamk., (as stated in 1801) and *Melampus*. Therefore Lamarck's name should be retained for it.

2. AURICULA SACCATA, Pfr. (*Ellobium elongatum*, var., H. and A. Adams, in Mus. Cuming). *A. testa breviter et profunde rimata, obclavata, solida, striatula, irregulariter erosa, nitidula, fusco-lutea; spira elongato-conica, acuta; sutura plana, lacera; anfr. 8-9, planis, ultimo spiram subæquante, deorsum dilatato, basi saccato; apertura verticali, anguste ovali; plica parietali 1 parvula, mediana, subtransversa; plica columellari obsolete bidenticulata; perist. obtuso, margine dextro superne sinuato, intus medio incrassato, columellari dilatato, calloso, patente.*

Long. 14, diam. max. 6 mill.

Hab. Manilla.

3. MELAMPUS ADAMSIANUS, Pfr. *M. testa subrimata, ovato-oblonga, solidula, lævigata, atro-virente; spira convexo-conica, acuta; sutura lineari; anfr. 9, planis, superis subplicatis, ultimo $\frac{2}{3}$ longitudinis formante, superne obsolete angulato, prope suturam fascia 1 latiore, nonnullisque angustis pallidis ornato, striis incrementi nonnullis irregulariter sculpto, basi rotundato; apertura subverticali, anguste semiovali; plica parietali 1 mediocri, compressa, transversa; plica columellari obliqua, extrorsum porrecta; perist. recto, albo-limbato, margine dextro superne sinuato,*

intus plicis 6-7 brevibus, albis munito, columellari calloso, subdilatato.

Long. 10, diam. 5 mill.

Hab. New Zealand.

4. *MELAMPUS SPIRALIS*, Pfr. *M. testa subrimata, biconica, solidula, striatula, nitidula, alba; spira conoidea, acute mucronata; sutura lineari; anfr. 10, superis planis, distincte spiraliter striatis, ultimo $\frac{3}{4}$ longitudinis fere æquante, spiraliter obsoletissime striato, infra suturam excavato, tum obtuse angulato, deorsum regulariter attenuato, basi compresso; apertura subverticali, oblonga, basi rotundata; plicis parietalibus sub 2, superiore lamellæformi, intrante, altera immediate infra illam, obsoleta; plica columellari alta, extrorsum subhorizontaliter porrecta; perist. acuto, margine dextro superne angulato, intus plicis transversis 7-8 munito, columellari parum dilatato, subpatente.*

Long. 16, diam. max. 9 mill.

Hab. — ?

5. *MELAMPUS CRISTATUS*, Pfr. *M. testa imperforata, oblongo-ovata, solida, spiraliter confertim striata, sericea, luteo-fulva; spira brevi, convexa, mucronata; sutura canaliculata; anfr. 8, convexiusculis, penultimo latiore, ultimo $\frac{2}{3}$ longitudinis formante, supra medium ventroso, basi attenuato; apertura vix obliqua, perangusta, basi bisinosa; plicis parietalibus 3, suprema nodiformi, 2 subtransversis, extus in cristam callosam, spiralem continuatis; plica columellari valida, fere verticali; perist. acuto, margine dextro intus callo crasso, albo, confertim transverse plicato munito, columellari subdilatato, appresso.*

Long. $9\frac{1}{2}$, diam. 6 mill.

Hab. Philippine Islands.

6. *PEDIPES TRIDENS*, Pfr. *P. testa imperforata, globoso-conica, tenui, obsolete et confertim spiraliter striata, saturate fusca; spira turbinata, acutiuscula; sutura profunda, marginata; anfr. 5, convexis, ultimo $\frac{3}{5}$ longitudinis formante, inflato; apertura fere diagonali, subsemicirculari; plica parietali mediocri; labio columellari calloso, dentibus 2 distantibus munito; perist. simplice, acuto, edentulo.*

Long. $3\frac{3}{4}$, diam. max. $2\frac{1}{2}$ mill.

Hab. Bermuda.

2. DESCRIPTIONS OF SIXTEEN NEW SPECIES OF HELICEA, FROM THE COLLECTION OF H. CUMING, ESQ.

By Dr. L. PFEIFFER.

1. *VITRINA AUREA*, Pfr. *V. testa ambitu subauriformi, depressa, nitidissima, pellucida, aurea; spira plana, vertice vix prominulo; sutura levissima, marginata; anfr. 3 subplanis, rapide accrescentibus, ultimo depresso, periphæria obsoletissime subangulato,*

basi vix convexiore, lato; apertura perobliqua, ovali, intus submargaritacea; perist. simplice, margine dextro antrorsum subdilatato, columellari leviter inflexo.

Diam. maj. 13, min. 9, alt. $4\frac{2}{3}$ mill.

Hab. Salomon's Islands.

2. *SUCCINEA SIMPLEX*, Pfr. *S. testa ovata, tenui, striata, pellucida, nitida, succinea; spira brevi, conica, vertice submammillato, acutiusculo; anfr. $2\frac{1}{2}$ convexis, ultimo $\frac{2}{3}$ longitudinis æquante; columella substrictè recedente, leviter callosa; apertura obliqua, incumbente, angulato-ovalis; perist. simplice, recto, marginibus regulariter conniventibus.*

Long. $9\frac{1}{2}$, diam. 6, alt. $4\frac{1}{2}$ mill.

Hab. Salomon's Islands.

3. *SUCCINEA REPANDA*, Pfr. *S. testa ovato-oblonga, tenui, confertissime capillaceo-striata, vix sericea, pallide griseo-cornea; spira conica, acuta, plerumque erosa; anfr. $3\frac{1}{2}$, penultimo convexiusculo, ultimo basi repando; columella superne subplicata, callosa, leviter arcuata; apertura obliqua, angulato-ovalis, intus submargaritacea; perist. simplice, recto, marginibus callo tenuissimo junctis.*

Long. 12, diam. $6\frac{1}{2}$, alt. 5 mill.

Hab. Banks of the river Negro, New Granada.

4. *HELIX GENERALIS*, Pfr. *H. testa imperforata, globoso-turbinata, striatula et rugulis obliquis præcipue subtus sculpta, non nitida, sub epidermide luteo-virente alba; spira convexo-conoidea, obtusula; sutura levi, submarginata; anfr. $4\frac{1}{2}$, convexiusculis, celeriter accrescentibus, ultimo antice vix descendente, supra peripheriam lira plana latiuscula cincto, basi parum convexo; columella vix obliqua, compressa, excavata, alba; apertura diagonali, oblique truncato-ovalis, intus lactea; perist. tenui, marginibus conniventibus, dextro vix expansiusculo, basali incrassato, breviter reflexo, cum columella angulum obtusum formante.*

Diam. maj. 57, min. 45, alt. 40 mill.

Hab. Philippine Islands.

5. *BULIMUS EXCORIATUS*, Pfr. *B. testa aperte umbilicata, ovato-acuminata, tenuiuscula, striatula, sub lente punctulata, non nitente, carnea; spira conica, acuta; anfr. 6, convexiusculis, ultimo spiram superante, subinflato; apertura parum obliqua, acuminato-ovalis; perist. tenui, expanso, marginibus fere contiguis, callo tenui junctis, dextro medio dilatato, columellari perdilatato, patente.*

Long. 39, diam. 19 mill.

Hab. Andes of Peru (Captain Keppell).

6. *BULIMUS CRETACEUS*, Pfr. *B. testu umbilicata, ovato-conica, solidula, striatula et impresso-punctata, opaca, cretacea; spira*

convexo-conica, apice acutiuscula; anfr. 6, vix convexiusculis, ultimo spiram paulo superante, antice subascendente, basi juxta umbilicum profundum, subcompressum rotundato; apertura vix obliqua, oblongo-ovali, intus fusca; perist. tenui, albo-limbato, marginibus convergentibus, callo junctis, dextro late expanso, columellari fusco, dilatato, fornicatim patente.

Long. 36, diam. 18 mill.

Hab. Eastern Islands (Captain Keppell).

7. *BULIMUS TRISTIS*, Pfr. *B. testa compresse umbilicata, oblongo-conica, tenui, lævigata, nitidula, albida, fasciis et strigis vel seriebus macularum quadratarum, violaceo-fuscarum ornata; spira convexo-conica, apice acuta; anfr. 6½, vix convexiusculis, ultimo spiram paulo brevior, basi angustato, rotundato; columella leviter arcuata; apertura vix obliqua, ovali; perist. tenui, margine dextro breviter expanso, columellari luteo vel albo, superne dilatato, fornicatim reflexo.*

Long. 28, diam. 11 mill.

Hab. New Granada.

8. *BULIMUS HISTRIO*, Pfr. *B. testa subperforata, ovato-conica, tenui, lævigata, nitida, lutescenti-alba, serie macularum castanearum, subquadratarum supra suturam picta; spira conica, apice nigra, obtusula; anfr. 5½, convexiusculis, ultimo spiram vix superante, infra medium nigro-fusco bizonato, basi rotundato; apertura parum obliqua, elliptico-ovali; perist. simplice, recto, margine dextro arcuato, columellari subverticali, superne late reflexo, perforationem fere tegente.*

Long. 13, diam. 7½ mill.

Hab. Tanna, New Hebrides.

9. *BULIMUS COLUMBIENSIS*, Pfr. *B. testa breviter rimata, subperforata, oblongo-turrita, solida, sublævigata, parum nitida, flavido-albicante; spira elongata, subconvexo-turrita, apice cornea, acutiuscula; anfr. 7, vix convexiusculis, ultimo ¾ longitudinis æquante, basi subcompresso; columella stricta, recedente; apertura parum obliqua, oblongo-ovali; perist. recto, acuto, margine dextro leviter arcuato, columellari subito reflexo, patente.*

Long. 28, diam. 11½ mill.

Hab. Columbia.

10. *BULIMUS SIMPLICULUS*, Pfr. *B. testa perforata, conico-ovata, solida, ruguloso-striata (lineis spiralibus sub lente obsolete decussata), nitidula, alba, punctis pellucidis passim conspersa; spira convexo-conica, apice cornea, obtusula; sutura minute crenulata; anfr. 6, modice convexis, ultimo spiram paulo brevior, basi subrotundato; columella substricta, superne subplicata; apertura vix obliqua, oblongo-ovali; perist. simplice,*

recto, margine dextro leviter arcuato, columellari dilatato, fornicatim reflexo.

Long. $19\frac{1}{2}$, diam. $9\frac{1}{2}$ mill.

Hab. — ?

11. *BULIMUS MARMATENSIS*, Pfr. *B. testa perforata, globoso-conica, tenui, striatula, pellucida, pallide griseo-fulva; spira conica, obtusiuscula; anfr. $4\frac{1}{2}$, modice convexis, ultimo spiram vix superante, rotundato; columella leviter arcuata; apertura parum obliqua, rotundato-ovali; perist. simplice, recto, margine dextro perarcuato, columellari superne dilatato, supra perforationem angustam fornicatim reflexo.*

Long. 17, diam. 10 mill.

Hab. Marmato, New Granada.

12. *BULIMUS HAPLOCHROUS*, Pfr. *B. testa perforata, ovato-fusiformi, tenui, sublævigata, non nitente, diaphana, corneo-albida; spira elongata, convexo-turrita, acutiuscula; anfr. 7, vix convexiusculis, ultimo spira paulo brevior, basi attenuato; columella leviter arcuata; apertura obliqua, subelliptica, basi subangulata; perist. simplice, recto, margine dextro regulariter arcuato, columellari sursum dilatato, fornicato-reflexo.*

Long. 30, diam. 12 mill.

Hab. — ?

13. *BULIMUS DIAPHANUS*, Pfr. *B. testa anguste perforata, turrito-oblonga, tenui, striatula, haud nitente, diaphana, epidermide rufa, transversim lirata induta; spira elongato-conica, apice obtusula; anfr. 6, convexiusculis, ultimo $\frac{3}{4}$ longitudinis subæquante, basi rotundato; columella substricta; apertura vix obliqua, oblongo-ovali; perist. simplice, acuto, margine dextro recto, leviter arcuato, columellari vitreo, superne fornicatim reflexo.*

Long. 15, diam. 7 mill.

Hab. S. Thomas, W. Indies (Bland).

14. *PARTULA PACIFICA*, Pfr. *P. testa compresse umbilicata, ovato-conica, tenuiuscula, sublente minutissime spiraliter striata, nitidula, straminea, lineis albis et fulvis radiata; spira conica, apice acuta; sutura profunda, submarginata; anfr. $5\frac{1}{2}$, convexis, ultimo spira paulo brevior, basi subattenuato; columella superne recedente, fornicata; apertura vix obliqua, truncato-oblonga; perist. albo, expanso, margine dextro superne arcuato, columellari late patente et reflexo.*

Long. 22, diam. 10 mill.

Hab. Pacific Islands.

15. *ACHATINA VIRENS*, Pfr. *A. testa cylindraneo-turrita, tenuissima, leviter striatula (striis ad suturam distinctioribus), nitidissima, pellucida, virenti-cornea; spira elongata, superne sensim attenuata, apice obtusula; sutura subcrenulata; anfr.*

8, *convexiusculis*, ultimo $\frac{1}{3}$ longitudinis vix æquante, convexiore; columella perarcuata, abrupte truncata; apertura verticali, irregulariter ovali; perist. simplice, recto, margine dextro leviter arcuato.

Long. 18, diam. 8 mill.

Hab. —?

16. *ACHATINA MANIENSIS*, Pfr. *A. testa subrimata, ovato-oblonga, solidula, sublævigata, pallide cornea; spira convexo-turrita, apice obtusa; sutura marginata; anfr. 6, vix convexiusculis, ultimo $\frac{2}{3}$ longitudinis subæquante, basi subcompresso; columella verticali, introrsum subtorta, ad basin aperturæ subrhombéo-ovalis truncatula; perist. simplice, obtuso, margine columellari reflexiusculo, adnato.*

Long. 7, diam. 3 mill.

Hab. Mani, Sandwich Islands (Dr. Newcomb).

3. DESCRIPTIONS OF ELEVEN NEW SPECIES OF CYCLOSTOMACEA, FROM THE COLLECTION OF H. CUMING, ESQ.

BY DR. L. PFEIFFER.

1. *CYCLOSTOMA (CYCLOPHORUS) ALABASTRINUM*, Pfr. *C. testa umbilicata, subdepresso-turbinata, solida, sublævigata, spiralliter minutissime striata, alabastrina; spira turbinata, sursum livido-fusca, apice convexiuscula; anfr. 5, convexis, celeriter accrescentibus, ultimo periphæria obsoletissime subangulato et antice rudimenta fasciæ castaneæ exhibente, basi inflato; umbilico angusto, vix pervio; apertura vix obliqua, circulari; perist. fulvo-carneo, continuo, breviter adnato, crasso, undique reflexo, margine sinistro subdilato.*

Diam. maj. 45, min. 34, alt. 25 mill.

Hab. Ceylon (Mr. Thwaites).

2. *CYCLOSTOMA (CYCLOPHORUS) POLYNEMA*, Pfr. *C. testa umbilicata, depresso-turbinata, tenuiuscula, oblique striatula et liris filiformibus confertissimis, subtus obsoletioribus, cincta, superne flammis angulosis late castaneis et albidis variegata; spira brevi, turbinata, apice obtusula; anfr. $4\frac{1}{2}$, convexiusculis, rapide accrescentibus, ultimo ad suturam antice subplanato, periphæria obsoletissime angulato et fascia lata, nigro-fusca, deorsum diluta ornato, circa umbilicum mediocrem pallido; apertura obliqua, subrotundata, latiore quam alta; perist. albo, continuo, breviter adnato, margine dextro expansiusculo, columellari breviter revoluto.*

Diam. maj. 33, min. 26, alt. 17 mill.

Hab. —?

3. *CYCLOSTOMA (CYCLOPHORUS) EXCELLENS*, Pfr. *C. testa umbilicata, subturbinato-depressa, solida, confertim spiralliter*

sulcata, parum nitida, fusco-aurantiaca, strigis angustis, fulguratis, albis elegantissime picta; spira breviter turbinata, apice corneo, obtusulo; anfr. 5, convexis, rapide accrescentibus, ultimo carina funiformi alba et adjacente linea rufa cincto, superne turgido, juxta suturam excavato, basi pallido, circa umbilicum late infundibuliformem subangulato; apertura parum obliqua, subcirculari, intus margaritaceo-alba; perist. pallide carneo, continuo, breviter adnato, superne subangulato, margine dextro breviter patente, sinistro anguste reflexo.

Diam. maj. 53, min. 42, alt. 24 mill.

Hab. —?

4. **CYCLOSTOMA (CYCLOPHORUS) SPIRONEMA**, Pfr. *C. testa umbilicata, subturbinato-depressa, solida, liris crebris filiformibus sculpta, superne late castaneo et albido variegata; spira brevi, vertice acutiusculo; sutura submarginata; anfr. 4, convexis, rapide accrescentibus, ultimo juxta suturam subplano, ad peripheriam rotundatam fascia alba et infra eam altera late castanea ornato, circa umbilicum latiusculum sublævigato, pallido; apertura vix obliqua, subangulato-circulari; perist. continuo, breviter adnato, vix expanso, ætate in tubum mediocrem, spiraliter striatum, producto.*

Diam. maj. 28, min. $22\frac{1}{2}$, alt. 14 mill.

Hab. India.

5. **CYCLOSTOMA (CYCLOPHORUS) THWAITESI**, Pfr. *C. testa late umbilicata, depressa, subdiscoidea, tenui, subconfertim arcuato-striata, nitidula, luteo-fulva, strigis angulosis castaneis eleganter flammata; spira subplana, vertice vix prominulo; sutura profunda; anfr. 4, modice convexis, celeriter accrescentibus, ultimo terete, antice vix descendente; apertura fere diagonali, ovali-rotundata; intus submargaritacea; perist. simplice, acuto, marginibus fere contiguis, callo tenui junctis, dextro expansiusculo, columellari subreflexo.*

Diam. maj. 12, min. 9, alt. 5 mill.

Hab. Ceylon (Mr. Thwaites).

6. **CYCLOSTOMA (LEPTOPOMA) FLAMMEUM**, Pfr. *C. testa angustissime umbilicata, elongato-conica, tenui, oblique leviter striatula, fulva, strigis angulatis rufis ornata; spira elevata, conica, apice acutiuscula, pallida; sutura profunda; anfr. 6, perconvexis, lente accrescentibus, ultimo rotundato; apertura parum obliqua, subcirculari, intus concolore; perist. simplice, recto, marginibus breviter disjunctis, columellari subdilatato, patente.*

Diam. maj. 8, min. 7, alt. 8 mill.

Hab. Ceylon (Mr. Layard).

7. **CYCLOSTOMA (LEPTOPOMA) CONULUS**, Pfr. *C. testa anguste umbilicata, conica, tenui, epidermide corneo-fulva, distanter membranaceo-costulata induta; spira regulariter conica, apice*

obtusiuscula; anfr. 5, sensim accrescentibus, subangulato-convexis, ultimo liris sub 6 distinctis filiformibus cincto; apertura parum obliqua, subangulato-circulari; perist. simplice, acuto, vix expansiusculo, marginibus subdisjunctis, columellari reflexiusculo.

Diam. maj. 4, min. $3\frac{2}{3}$, alt. $3\frac{1}{2}$ mill.

Hab. Ceylon (Mr. Thwaites).

8. *CYCLOSTOMA (ADAMSIELLA?) LONGICOLLE*, Pfr. *C. testa penitus perforata, oblongo-turrita, truncata, tenuiuscula, liris spiralibus obsoletis et costulis confertis, acutiusculis clathrata, albida, seriatim rufo-punctata; spira convexo-turrita; sutura profunda, minutissime crenulata; anfr. superst. $4\frac{1}{2}$, convexis, ultimo subterete, dorso vix angulato, antice longe soluto, oblique descendente; apertura obliqua, circulari; perist. duplice: interno breviter porrecto, externo dilatato, latere columellari subexciso, præterea rectangulariter patente, spiraliter substriato, rufo-radiato.*

Long. max. 17, diam. anfr. penult. 8 mill.

Hab. Jamaica.

9. *CYCLOSTOMA (CYCLOSTOMUS) PARVISPIRUM*, Pfr. *C. testa angustissime umbilicata, globoso-conica, solidula, sublævigata, nitidula, flavida, fascia 1 angusta, spadicea infra peripheriam, sæpeque aliis interruptis ornata; spira parvula, conoidea, apice acutiuscula; anfr. $4\frac{1}{2}$, modice convexis, celeriter accrescentibus, ultimo ventroso, circa umbilicum liris nonnullis elevatis munito; apertura vix obliqua, ovali-rotundata, superne vix angulata; perist. simplice, recto, ad anfr. penultimum breviter interrupto, margine columellari reflexiusculo. Operc. C. elegantis.*

Diam. maj. 12, min. 10, alt. 9–10, mill.

Hab. —?

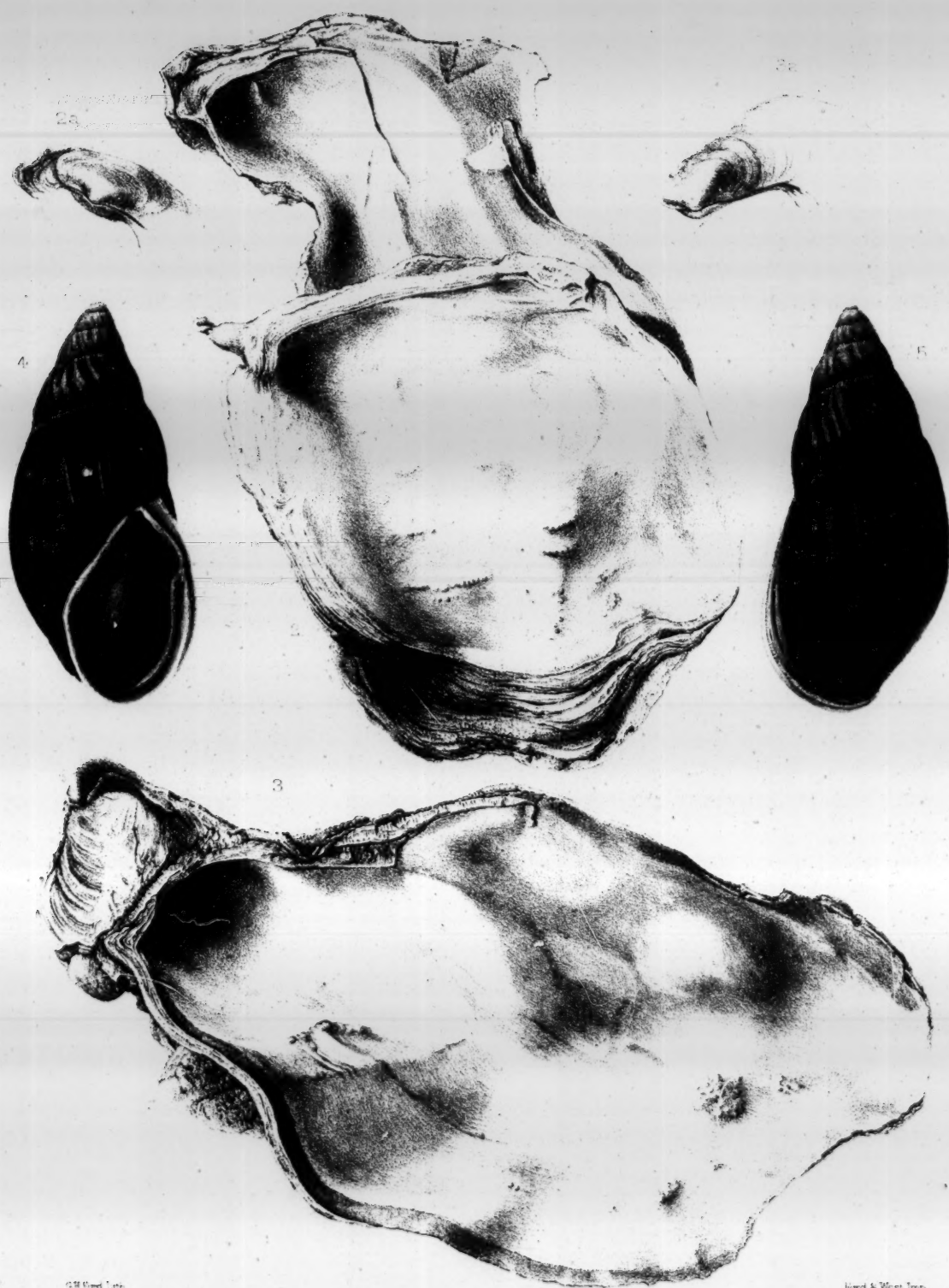
10. *CYCLOSTOMA (CHONDROPOMA?) PUNCTICULATUM*, Pfr. *C. testa anguste perforata, ovato-oblonga, truncata, liris spiralibus levibus, costulisque illas transgredientibus confertissimis sculpta, cereo-albida, seriebus spiralibus punctulorum ruforum ornata; spira subturrita; sutura eleganter et subremote dentata; anfr. superst. 4, modice convexis, regulariter accrescentibus, ultimo antice soluto, dorso carinato, infra medium lineis nonnullis rufis cincto; apertura verticali, subelliptica, superne angulata, basi subeffusa; perist. simplice, continuo, undique breviter expanso.*

Long. 10, diam. 5 mill.

Hab. West Indies.

11. *CYCLOSTOMA (CHONDROPOMA?) ANGUSTATUM*, Pfr. *C. testa vix perforata, oblongo-turrita, truncata, solidula, liris spiralibus costisque confertioribus obtuse clathrata, fulvo-lutea, fasciis interruptis castaneis picta; spira convexo-turrita; sutura confertim et acute crenata; anfr. superst. $4\frac{1}{2}$, convexiusculis, ul-*





123 *Mulleria lobata*. 2. 3. Apices enlarged showing the symmetrical state of the Shells

45 *Bulinus bivariatus* Cask.

timō angustato, basi confertius spiraliter sulcato, antice via soluto; apertura verticali, ovali-rotundata; perist. subduplicato, undique breviter expanso, superne subangulato.

Long, 16, diam. 7 mill.

Hab. — ?

4. ON THE GENUS MULLERIA, SOWERBY, OR
ACOSTÆA, D'ORBIGNY.

By DR. JOHN EDWARD GRAY, F.R.S., P.B.S., V.P.Z.S.

(Mollusca, Pl. XXIX.)

M. d'Orbigny has very kindly transferred to me the specimens of the shells which he described, in the 'Rev. et Mag. Zool.' 1851, under the name of *Acostæa Guaduasana*, and which he had received from Rio Sero near Guadual (Rio Magdalena) in Bogota. The examination of the specimens proves the truth of the supposition which I formerly expressed, that Mr. Sowerby's genus *Mülleria* was described from an imperfect specimen of this shell which had lost its umbones, with the young free state of the shell attached to them, in the manner so characteristic of this genus.

The series of specimens consists of a pair, not in a very perfect condition, and without the produced umbo of the attached valve, like the specimen described by Mr. Sowerby, but in a less worn condition, four specimens of the attached valve, and several of the free upper one.

The series of attached valves is curious, as showing the very different state of the umbo, the manner in which the free valves are modified before one of the valves becomes fixed; also the manner in which the upper free valves separate from the free part by a natural crack, when the free valves become united together by their edges, forming a shelly tube. In two of the specimens this crack takes place almost immediately behind the posterior end of the symmetrical free shell; in two of the others, the hinder part of the free shell is dilated into a triangular irregular portion before the hinder older part of the upper valve separates from the young one; in one of these the triangular tube thus formed is narrow and elongate; in the other, broad, forming a nearly equilateral triangular cavity under the umbo of the attached valve.

In three of the five specimens the shell is attached by the outer surface of the right valve, and in the other two by that of the left valve; the three specimens attached by the right valve exhibit all the three variations in the form of the umbo, viz. the absence of the free shell (fig. 1.), the small (fig. 2.), and the large and much-dilated (fig. 3.) state of it.

There can be no doubt, as far as one can undertake to determine from the examination of the shell alone, of the affinity of this genus with *Etheria*, from which it appears only to differ in the very small size, or indeed in the total absence of the anterior adductor muscle. Like *Etheria*, the lower valve is rather attached to the stones and

No. CCLXVIII.—PROCEEDINGS OF THE ZOOLOGICAL SOCIETY.

shells to which it is affixed, by inequalities in the form and surface of the shell, than by any real attachment of the substance of the shell itself, for the attached valves are covered with a continuous periostraca.

As all attached shells have a free young state, as may be seen by examining the umbones of *Arcinella*, *Chama*, and other attached bivalves, the young of *Etheria* are doubtless free, and there is nothing peculiar in the young of *Mülleria* being free; but there is a great peculiarity in the young shell becoming united into a tubular case, and one of the valves, after the other has become attached, separating itself from its younger part by a natural caries or crack.

June 27, 1854.

Dr. Gray, Vice-President, in the Chair.

The following papers were read :—

1. DESCRIPTIONS OF THIRTY-NINE NEW SPECIES OF SHELLS,
FROM THE COLLECTION OF HUGH CUMING, ESQ.

BY ARTHUR ADAMS, F.L.S., &c.

(Mollusca, Pl. XXVIII.)

1. VOLVA ROSEA, A. Adams. (Pl. XXVIII., fig. 9.) *V. testa elongata, medio ventricosa, ad extremitates attenuata, coarctata, rectiuscula, rosea, albo-varicosa, lævi, dorso fascia angusta, transversa, albida ornato, labio in medio ventricoso, ad extremitates subrecurvo, labro crasso, antice angulatim arcuato, ad canalem emarginato.*

Hab. China. Mus. Cuming.

Like *V. birostrata*, but is more slender, and more attenuated posteriorly, and wants the spiral fold on the hind part of the inner lip; the anterior beak is straight and not recurved, and the marginal varix of the outer lip is thinner.

2. AMPHIPERAS MARGARITA, A. Adams. *A. testa ovali, ventricosa, alba, nitida, semipellucida, transversim striata, dorso obscure angulato; apertura angusta, canalibus brevibus, obtusis, integris, labio postice vix calloso, antice excavato, labro complanato, lirato, intus denticulato.*

Hab. New Caledonia. Mus. Cuming.

This is a pure white, pearl-like shell, semi-pellucid, finely striated across, gibbous on the back, with hardly any trace of the usual callus at the hind part of the inner lip, and with a prominent longitudinal ridge at the fore part.

3. AMPHIPERAS RHODIA, A. Adams. (Pl. XXVIII., fig. 8.)
A. testa ventricosa, subpyriformi, rosacea, albo-varicosa, dorso

subgibboso, ad extremitates subacuta, canalibus brevibus, subproductis, integris; apertura angusta; labio laevi, tumido, postice callo producto, spirali instructo, ad canalem tortuoso, antice excavato, ad canalem obscure uniplicato, labro complanato, lirato, intus denticulato.

Hab. Japan. Mus. Cuming.

A beautiful delicate pink species, with the posterior canal a little produced, and the inner lip at that part spirally contorted, the anterior part excavated and the extremities transversely sulcated.

4. *AMPHIPERAS SCITULA*, A. Adams. *A. testa ovali, ventricosa, laevi, alba, transversim striata, ad extremitates subproducta; apertura angusta, canalibus brevissimis, integris, labio postice callo spirali instructo, antice uniplicato, labro complanato intus et ad extremitates usque ad marginem plicato-dentato.*

Hab. New Caledonia. Mus. Cuming.

This is a small species of a white colour somewhat resembling *A. concinna*, Sow., but the back is not gibbous, and is transversely striated; the striae are sometimes almost obliterated in the middle.

5. *AMPHIPERAS PYRULINA*, A. Adams. *A. testa ventricosa, pyriformi, albida, ad extremitates subproducta et pallide fulva, transversim striata; apertura angusta; labio laevi, in medio tumido, canalibus brevibus vix emarginatis, postice callo simplici instructo, labro intus crenulato.*

Hab. New Caledonia. Mus. Cuming.

A neat pyriform species very much resembling *A. bimaculata*, but the interior of the beaks wants the orange spots seen in that species, and the general form of the shell is pyriform and constricted anteriorly.

6. *AMPHIPERAS BIMACULATA*, A. Adams. *A. testa ovali, subpyriformi, albida, fasciis tribus pallide fuscis, transversis ornata, ad extremitates vix producta, transversim striata, canalibus intus aurantiaco tinctis; apertura angusta, labio postice callo crenato instructo, labro intus crenulato-plicato.*

Hab. New Caledonia. Mus. Cuming.

Somewhat resembling *A. pyrulina* in colour, but is not so pyriform; the posterior callus of the inner lip is crenate, and there are three pale brown bands across the back of the shell; the orange marks in the beaks are also peculiar.

7. *AMPHIPERAS (OVULA) PUDICA*, A. Adams. *A. testa ovata, ventricosa, carnea, albo-varicosa, laevi, canalibus brevibus, vix emarginatis; apertura angusta, alba; labio postice tuberculo elevato, subacuto instructo, antice producto, angulato, ad canalem uniplicato, labro intus crenulato, margine serrato.*

Hab. New Caledonia. Mus. Cuming.

A flesh-coloured bulliform species with the aperture and varix of the outer lip white and the margin of the outer lip serrated; it is

something like the *A. carnea* of Lamarck, but differs in the formation of the inner lip.

8. **POLYDONTA (INFUNDIBULUM) TRITONIS**, A. Adams. *P. testa elevato-conica, pseudo-umbilicata, viridi, albido subvariegata, anfractibus superne gibbosiusculis, cingulis transversis granorum ornatis, ultimo ad peripheriam angulato, basi concava, albida, concentric striata, regione umbilicali infundibuliformi, columella superne tortuosa, margine tuberculato.*

Hab. New Zealand. Mus. Cuming.

This is a well-marked, greenish species, obscurely varied with white; the whorls are gibbose, the last acutely angulated and crenate at the periphery, and the base is white and concave.

9. **POLYDONTA (INFUNDIBULUM) NEPTUNI**, A. Adams. *P. testa elevato-conica, lateribus convexiusculis, viridi-fusca, anfractibus planis, cingulis granosis transversis ornatis, ultimo angulato, basi planiusculo, cingulis granosis instructo, centro excavato, umbilicum mentiente, columella superne soluta, margine tuberculato-dentato, labro intus lirato ad marginem intus laevigato.*

Hab. China. Mus. Cuming.

A greenish-brown species, with regular transverse rows of beaded ridges, and with the lateral outline convex; the colour is of a uniform greenish brown.

10. **POLYDONTA (INFUNDIBULUM) ÆMULANS**, A. Adams. *P. testa depresso-conica, pseudo-umbilicata, albida, rufo-fusco radiatim picta, anfractibus planis, cingulis transversis granulorum ornatis, serie bituberculata ad suturas, basi convexiusculo, rubro radiatim ornato ac cingulis confertis, concentricis, crenulatis instructo; regione umbilicali infundibuliformi, alba, columella superne tortuosa, margine simplice.*

Hab. China. Mus. Cuming.

A handsome species variegated with broad radiating red-brown markings, and with a conspicuous double row of tubercles at the sutures.

11. **POLYDONTA (INFUNDIBULUM) CONCINNUM**, A. Adams. *P. testa conica, pseudo-umbilicata, lutescente, fusco vividoque variegatim picta, anfractibus planiusculis, cingulis transversis granulorum, cingulis distantioribus, interstitiis liris moniliformibus ornatis, anfractu ultimo ad peripheriam angulato; regione umbilicali infundibuliformi, albida, basi laevigata, cingulis concentricis, articulatis ornata; columella recta, margine simplice.*

Hab. China Seas. Mus. Cuming.

This is a small but handsomely variegated species, with the false umbilicus infundibuliform and of a whitish colour, and with the base of the shell adorned with concentric zones articulated with dark brown.

12. STOMATELLA CLATHRATULA, A. Adams. *S. testa imperforata, turbinato-depressa, spira elevata, uscula, anfractibus convexis, transversim liris, liris nonnullis prominentibus, rufo articulatis, asperis, interstitiis concinne clathratis; regione umbilicali impressa; columella crassa, reflexa; apertura mediocri, orbiculari, intus margaritacea. Operculum corneum.*

Hab. —? Mus. Cuming.

As in *S. cancellata*, *S. imbricata*, and others of this group, there is a multispiral horny operculum; the whorls are finely clathrate, and the axis is not perforate.

13. STOMATELLA COMPTA, A. Adams. *S. testa haliotidea, orbiculato-depressa, fusca, intus vivide iridescenti, spira obtusiuscula, anfractibus convexis, longitudinaliter oblique striatis, transversim liris, liris inæqualibus, nonnullis prominentibus ac nodulosis; regione umbilicali impressa; columella acuta; apertura suborbiculari.*

Hab. —? Mus. Cuming.

A well-defined, thin, brown species, with transverse, elevated, nodulose liræ, and with the interior of the aperture vividly iridescent.

14. STOMATELLA SELECTA, A. Adams. *S. testa haliotidea, spira prominula, subperforata, virescente, rufo, fusco, alboque maculata et punctata, longitudinaliter oblique striata, transversim lirata; regione umbilicali alba, lævi; apertura intus vivide margaritacea, columella superne reflexa, umbilicum partim obtegente.*

Hab. —? Mus. Cuming.

This is a species of great delicacy and beauty, most nearly allied to *S. haliotidea*, Sow., but with the umbilical region surrounded by a smooth white space and with the columellar margin reflexed and producing the appearance of an umbilicus.

15. STOMATIA SPLENDIDULA, A. Adams. *S. testa haliotidea, orbiculato-depressa, spiræ anfractibus tribus, bicarinatis, anfractu ultimo transversim lirato, liris inæqualibus, asperulatis, interstitiis longitudinaliter striatis, superne pallida, ad suturas rubro-fusco radiata, inferne rufescente, fusco punctata, infima facie flammulis rubris, radiantibus ornata; apertura intus alba, opaca, spiraliter viridi lineata, margine margaritacea.*

Hab. —? Mus. Cuming.

In this species the columellar margin is reflexed and pearly, but the interior of the aperture, with the exception of the inner margin of the outer lip, is opaque white, with green spiral lines.

16. STOMATIA DECORATA, A. Adams. (Pl. XXVIII., fig. 2.) *S. testa haliotidea, orbiculato-depressa, obtecte umbilicata, anfractibus spiræ bicarinatis, transversim sulcata ac striata, ad suturas oblique plicata, anfractu ultimo unicarinato; apertura intus alba, opaca, margaritacea; colore fusco-luteo, rubro maculato et punctato.*

Hab. —? Mus. Cuming.

This is a large and showy species somewhat resembling *S. rubra*, Lamk., in the character of the markings and colour; it is not tubercular like that species.

17. MITRA MORCHII, A. Adams. (Pl. XXVIII., fig. 5.) *M. testa ovato-fusiformi, candida, spira acuminata, aperturam æquante, anfractibus octo, convexiusculis, transversim undique liratis, interstitiis crebre clathratis; apertura angusta, columella quinqueplicata, labro intus simplice.*

Hab. Australia. Mus. Cuming.

A large elegant white shell of the same form and with the same style of sculpture as *M. filosa*, and belonging to the subgenus *Cancellilla*. I have much pleasure in dedicating this fine species to M. Mörch, the talented author of the 'Catalogue of Count Yoldi's Shells,' &c.

18. MITRA RUBIGINEA, A. Adams. *M. testa oblongo-ovata, rubiginosa, spira acuta aperturam æquante, anfractibus novem planiusculis, transversim liratis, liris carinatis, interstitiis clathratis; apertura longiuscula, columella quadriplicata, labro margine crenato, intus sulcato.*

Hab. Australia. Mus. Cuming.

This species somewhat resembles *M. ferruginea*, Lamk., but the interstices between the transverse liræ are cancellated, and the liræ themselves have a filiform carina in the middle.

19. MITRA PUNCTOSTRIATA, A. Adams. *M. testa ovato-fusiformi, sordide lutea, ad suturas rufo maculata, spira acuta, aperturam vix æquante, anfractibus planiusculis, glabris, transversim punctato-striatis, ultimo ad basin liris transversis instructo; apertura angusta, columella quadriplicata, labro intus simplice.*

Hab. Ceylon (*E. L. Layard, Esq.*), Mus. Cuming.

This species, which seems to belong to the subgenus *Mitreola* has a smooth, glabrous appearance; but when examined with a lens, the whorls will be seen to be transversely punctato-striate.

20. VOLUTOMITRA CINNAMOMEA, A. Adams. *V. testa oblongo-fusiformi, lævi, tenui, cinnamomea, spira acuta, aperturam æquante, anfractibus planiusculis, supremis longitudinaliter costatis, infimis lævibus; apertura oblonga, columella quadriplicata, labro intus simplice.*

Hab. Natal. Mus. Cuming.

This is a small, brown, horny species, having all the peculiarities of shell which characterize the genus *Volutomitra* of Gray.

21. VOLUTOMITRA VINCTA, A. Adams. *V. testa oblongo-ovata, lævi, tenui, lutescente, ad suturas linea nigro-fusca cincta, et altera linea nigro-fusca transversa in medio anfractus ultimi; spira acuta, apertura longiore, anfractibus planiusculis; apertura oblonga, columella quadriplicata, labro acuto, intus simplice.*

Hab. Cape Natal. Mus. Cuming.

This is a pretty little species, of a yellowish colour, neatly banded

with brown-black, and partaking of the characters of *V. corniculum* of the Mediterranean, and other species forming the genus *Volutomitra* of Gray.

22. *VOLUTOMITRA* DIGNA, A. Adams. *V. testa ovato-fusiformi, spira acuminata, aperturam æquante, anfractibus planis, transversim punctato-striatis, anfractu ultimo antice contracto; apertura longiuscula, columella quinqueplicata, antice truncata, labro tenui, intus simplice; colore hepatico, ad suturas maculis strigisque pallide fulvis ornato.*

Hab. Australia. Mus. Cuming.

This peculiar-looking species belongs to Mr. Gray's genus *Volutomitra*, which appears to have the lingual dentition of *Voluta*, with the shell resembling in form that of *Mitra*.

23. *TURRICULA* ROSEATA, A. Adams. *T. testa fusiformi-turrita, in medio angustata, rubella, spira anfractibus tumidiusculis, apice obtusa, rosea, undique crebre clathrata, anfractu ultimo antice contracto, vix producto; apertura angusta, labro intus lirato.*

Hab. West Africa. Mus. Cuming.

Most like *M. mirifica*, Reeve, but the nucleus is large, smooth and pink, the spire is shorter, and the last whorl is not so much produced and reflexed anteriorly as in that species; it belongs to the subgenus *Thala*.

24. *TURRICULA* LAYARDII, A. Adams. *T. testa fusiformi-turrita, spira acuminata, aperturam magis æquante, anfractibus decem, planulatis, ad suturas vix angulatis, supremis longitudinaliter costellatis, interstitiis clathratis, ultimo transversim lirato, interstitiis punctato-clathratis; apertura angusta, columella quadriplcata, plica postica duplicata, labro intus lirato; rufo-fusca, suturis pallidis, anfractuum medio linea rubra.*

Hab. Ceylon (*E. L. Layard, Esq.*). Mus. Cuming.

Most like *Mitra crebrilirata*, Reeve, but more subulate and slender; the spire is longer, the whorls are less angulated at the sutures, and the columella is not so tortuous anteriorly. The species belongs to Swainson's subgenus *Callithea*.

25. *TUDICLA* FUSOIDES, A. Adams. *T. testa fusiformi, fulvescente, rufo-fusco variegata ac lentiginosa, spira acuminata, apice mamillata, transversim lirata, liris majoribus cum minoribus alternantibus, fusco articulatis, anfractibus in medio angulatis, serie unica tuberculorum acutorum ornatis; apertura ovali, intus alba, columella plica valida antica instructa, canali producta, recta, antice subrecurva, labro intus valde lirato.*

Hab. China. Mus. Cuming.

This species is fusiform, with a produced spire; the apex, however, is papillary, and the shell has all the characteristics which mark Bolten's genus *Tudicla*, or *Pyrella* of Swainson.

26. *TUDICLA* RECURVA, A. Adams. (Pl. XXVIII. fig. 4.) *T. testa fusiformi, fulvicante, lineis transversis, rufescentibus ornata,*

spira acuminata, apice mamillato, anfractibus transversim striatis, superne excavatis, in medio serie unica nodulorum instructis; apertura ovali, intus violascente, columella callosa, plica antica obliqua instructa, canali producta, valde recurva, labro acuto, margine sinuoso, intus lirato.

Hab. Senegal. Mus. Cuming.

In this species the whorls are encircled with a series of nodules; the columella is smooth and callous, the canal strongly recurved, and the interior of the aperture is of a delicate violet colour.

27. *PSEUDOLIVA LIVIDA*, A. Adams. *P. testa ovali, cinerascente, livida, spira obtusa, apice erosa, anfractibus 3-4 convexiusculis, transversim crebre striatis, anfractu ultimo antice oblique sulcato, sulco unico valde impresso; apertura ovali, columella alba, postice callo spirali instructa, antice oblique plicata, canali brevi, aperta, labro margine antice unidentato, intus lirato.*

Hab. West Coast of Africa. Mus. Cuming.

Most like *P. sepimentata*, Le Guillou, but the callous spiral ridge is less prominent, the inner lip is without the dark mark, the columella is less produced anteriorly, the spire is obtuse and eroded, and the whorls are rounded.

28. *CLYPIDELLA BAIKIEI*, A. Adams. (Pl. XXVIII. fig. 3.) *C. testa scutiformi, oblonga, depresso-conica, postice valde elevata, alba, lineis rufis, sagittiformibus radiatim picta, costis subnodulosis radiantibus ornata, concentrice striata; margine simplice; orificio magno, oblongo, postice valde inclinato.*

Hab. —? Mus. Cuming.

This is a very beautiful species, with the foramen placed far behind, and the posterior margin greatly elevated. It is dedicated to my friend and collaborateur in the 'Manual of Natural History for the Use of Travellers,' Dr. Baikie, who is now exploring the waters of the Chadda.

29. *CONUS CONNECTENS*, A. Adams. *C. testa turbinata, albida, aurantiaco sparsim tincta, spira vix elevata, apice submucronato, anfractibus angulatis, externe coronatis, supra excavatis ac radiatim striatis, anfractu ultimo levigato, antice transversim sulcato; apertura angusta, labro vix arcuato.*

Hab. China. Mus. Cuming.

This Cone appears to be most closely allied to *C. lithoglyphus*; it is whitish, clouded with pale orange; the spire is irregularly coronated, and the whorls are angulated.

30. *SCONSIA GRAYI*, A. Adams. (Pl. XXVIII. fig. 6.) *S. testa ovali, ventricosa, subtenui, sordide fulva, immaculata, spira brevi, anfractibus quinque, convexiusculis, transversim crebre sulcatis, longitudinaliter substriatis; labio callo laevi, expanso obtecto, columella antice corrugato-plicata, labro margine subreflexo, postice ascendente, intus incrassato ac plicato, canali brevi, vix recurva.*

Hab. —?

This species is thinner and more ventricose than *S. striata*; it is spotless, and more finely transversely grooved; the spire is less acute, the outer lip not so much thickened and inflexed, and plicate, not crenate, internally.

31. OPERCULATUM PICTUM, A. Adams. *O. testa orbiculato-ovali, plana, apice producto, fusco, incurvato, epidermide tenui, corneo oblecta, concentrice striata, albida, aurantiaco radiatim picta, intus nitida ad marginem aurantiaca.*

Hab. Lord Hood's Island. Mus. Haslar.

This species is richly painted with reddish-orange, disposed in a radiated manner round the outer margin, the rays extending towards the centre; the apex is hooked and more elevated than in the other species. The Linnean name of the genus is here used, but it has also been called *Umbella* by Chemnitz, and *Umbrella* by Lamarck.

32. STYLIFER BARRONII, A. Adams. *S. testa ovali, turrata, alba, nitida, semipellucida, apice mucronata, anfractibus septem, planis, postice angulatis, longitudinaliter oblique striatis; apertura oblongo-ovali, labro postice angulato, margine subincrassato.*

Hab. —? Mus. Cuming.

This species, remarkable for the angulated form of the whorls, is named after its discoverer, Mr. Charles Barron, who found it imbedded in the skin of a tropical species of *Asterias*, in which it had formed for itself a cystiform cavity.

33. PANOPÆA MIDDENDORFII, A. Adams. *P. testa transversa, ovato-trigonalis, alba, epidermide corrugata, cornea, fusca oblecta, transversim irregulariter plicata; latere antico rotundato, angustiore, postico latiore, subtruncato, ligamento prominente.*

Hab. Arctic Seas. Mus. Haslar.

This species appears to differ entirely in form from other known species, being more triangular and truncate posteriorly; the epidermis is peculiarly plicato-corrugate.

34. RHIZOCHILUS ASPER, A. Adams. *R. testa umbilicata, ovato-turrata, alba, rufo sparsim tincta, anfractibus sex, longitudinaliter plicatis, superne excavatis, in medio angulatis, transversim liratis, liris asperulatis, ad plicas spinulosis; apertura ovali, canali brevi, vix recurva, labro intus lirato.*

Hab. Gulf of California. Mus. Cuming.

This is a very beautiful white *Murex*-like species, with transverse spinulose liræ, and longitudinally plicate, angulated whorls.

35. RHIZOCHILUS (CORALLIOPHILA) RADULA, A. Adams. *R. testa ovali, imperforata, candida, spira prominula, anfractibus convexus, longitudinaliter plicatis, transversim liratis, liris squamulis, acutis, parvis asperulatis, interstitiis clathratis; apertura ovali, intus violascente, canali brevi, excurvata, regione umbilicali impressa, labro intus sulcato.*

Hab. China. Mus. Cuming.

This is a beautiful pure-white species, with the interior of the aperture of a pale violet, and with the entire surface covered with transverse rows of small acute scales, resembling the points of a rasp.

36. *RAPANA (LATIAXIS) RHODOSTOMA*, A. Adams. (Pl. XXVIII. fig. 1.) *R. testa fusiformi-turrita, umbilicata, spira acuminata, rutila, albo-fasciata, anfractibus convexiusculis, longitudinaliter plicatis, transversim liris, liris squamulis asperulatis, suturis canaliculatis, anfractu ultimo antice coarctato, regione umbilicali carina spirali circumcincta; apertura ovali, intus carnicolor, canali producta, recurvata.*

Hab. China. Mus. Cuming.

A handsomely coloured species, with a delicate pink aperture and channelled suture, partaking somewhat of the characters of *Rhizochilus*.

37. *PISANIA HERMANNSENI*, A. Adams. (Pl. XXVIII. fig. 7.) *P. testa oblongo-fusiformi, lævi, fulvicante, obscure albo-punctata, anfractibus septem tumidiusculis, ultimo antice transversim sulcato; apertura quadrato-ovali, columella postice lamina callosa instructa, labro expanso, antice dilatato, intus lirato.*

Hab. China. Mus. Cuming.

A fine mitriform species, of a fulvous colour, with the outer lip rather expanded, and sulcated interiorly. We have named it after M. Hermannsen, who has contributed so materially towards the natural history of the Mollusca, by his valuable work on Bibliography and Synonyms.

38. *PISANIA CRENILABRUM*. A. Adams. *P. testa fusiformi, spira exserta, brunnea, fascia lata spadiceo obscure articulata, anfractibus septem, supremis longitudinaliter plicatis, ultimo transversim lirato; apertura ovali, breviuscula, labio callo nitido obtecto, labro extus subincrassato, margine crenulato.*

Hab. West Indies. Mus. Cuming.

The spire in this species is longer than the aperture, the whorls are crossed with sharp elevated lines, and the margin of the outer lip is regularly crenulated.

39. *PISANIA RETICULATA*, A. Adams. *P. testa fusiformi-oblonga, fulvescente, rufo fuscoque lineata aut variegata, anfractibus septem, tumidiusculis, liris longitudinalibus et transversis undique creberrime reticulatis; apertura ovali, labio postice vix callosa, labro extus incrassato, intus lirato.*

Hab. New Caledonia. Mus. Cuming.

An elegant reticulated form, having very much the appearance of a *Metula*, but partaking chiefly of the peculiarities of *Pisania*.

2. DESCRIPTIONS OF THREE NEW SPECIES OF TITMICE.

BY FREDERIC MOORE.

Fam. PIPRIDÆ, Vigors.

Subfam. PARIANA.

Genus ORITES, Mœhring.

1. ORITES? LEUCOGENYS, Moore.

Colour above grey, tinged with pinkish on the rump: before the eye and a broad streak over it black, passing to mixed black and grey on the nape; the centre of the head dusky reddish-isabelline; base of lower mandible, below the eyes, ear-coverts and sides of the neck white; chin and throat jet-black; abdomen pale pinkish-isabelline; wings dusky and having an isabelline tinge, the winglet and coverts of the primaries black; the primaries and secondaries fringed externally with grey; axillæ white; tail dusky, tinged with isabelline, the outer feathers graduated and obliquely tipped externally with white, the centre feathers margined with grey. Bill black; feet yellowish-brown.

Length $4\frac{1}{2}$ inches; of wing $2\frac{1}{8}$ th; of tail $2\frac{1}{4}$; the three outer feathers graduated, the middle pair $\frac{2}{10}$ ths shorter than the next; bill to frontal plumes $\frac{2}{10}$ ths; to gape $\frac{5}{12}$ ths; height from chin to front $\frac{2}{12}$ ths; and tarse $\frac{7}{12}$ ths of an inch.

Hab. Afghanistan. In the Museum of the East India Company. "Found in pairs, in the woods above Balu Chughur, at 4,000 feet elevation. Irides straw-colour." Griffith, MSS. Notes.

This species is allied in colour to *O. jouschistos*, Hodgson, from which it may at once be distinguished by its broad, thick and higher bill, by its white cheeks and ear-coverts, and by its black chin and throat; and from *O. erythrocephalus*, Vigors, by its larger size, by the absence of the white superciliary streak, white chin, black ear-coverts, &c. On the habits of the latter species I beg to quote the following remarks made by Capt. Hutton, in 'Journ. A. S. Bengal,' 1848, p. 689. He says, "It is common at Mussooree, and in the hills generally throughout the year. It breeds in April and May; the situation chosen is various, as one taken in the former month at Mussooree at 7,000 feet elevation, was placed on the side of a bank among overhanging coarse grass; while another taken in the latter month at 5,000 feet, was built among some ivy turning round a tree, and at least 14 feet from the ground. The nest is in shape a round ball with a small lateral entrance, and is composed of green mosses warmly lined with feathers. The eggs are five in number, white with a pinkish tinge, and sparingly sprinkled with lilac spots or specks, and having a well-defined lilac ring at the larger end. Diameter $\frac{8}{16} \times \frac{6}{16}$ in."

2. ORITES (?) GLAUCOGULARIS, Gould, MS.

Colour above greyish-ash; crown black, with a broad pale-buff line extending down the centre; forehead and lores isabelline; base of lower mandible, ear-coverts, chin, breast, and middle of belly buff colour; rump, upper tail-coverts, flanks and sides of belly pinkish-isabelline, brightening to ferruginous on the vent and under tail-coverts; throat of a silvery or bluish-ash; sides of the neck below the ear-coverts whitish; wings brownish-black, coverts and speculars quite black, primaries and secondaries margined with greyish-white; axillæ and edge of shoulder white; tail black, the four outer feathers obliquely across both webs white. Bill black, and thick as in *O. leucogenys*; legs dark brown.

Length $4\frac{1}{2}$ inches; of wing $2\frac{1}{8}$ th; tail $2\frac{1}{2}$; its outermost feather 1 inch shorter; bill to frontal plumes $\frac{2}{10}$ ths, to gape $\frac{5}{12}$ ths; and tarse $\frac{7}{12}$ ths of an inch.

Hab. China. In the collection of John Gould, Esq.

3. ORITES (?) NIVEOGULARIS, Gould, MS.

Forehead white, passing to buff-brown on the back of the head, nape, and fore-part of the back, and thence to the tail grey, tinged with isabelline on the rump; lores, over the eyes and ear-coverts black, passing into the brown on the nape; ear-coverts blackish anteriorly and brownish-buff posteriorly, and somewhat striped longitudinally with white; base of lower mandible, chin, throat, fore-part of breast, and sides of the neck to the nape behind the ear-coverts snowy-white, and contrasting with a brownish band which runs from the nape across the middle of the breast; the lower part of the breast with the abdomen pale pinky-isabelline passing to white in the middle of the belly: wings brown, margined with greyish-white, coverts and speculars blackish: tail dusky-black, margined externally with greyish-white, its outermost feathers white on the outer web. Bill black, longish, and slender as in *O. jouschistos*, Hodgson; feet yellowish.

Length $4\frac{1}{2}$ inches; of wing $2\frac{1}{2}$; tail $2\frac{5}{8}$ ths, its outermost feather $\frac{1}{2}$ inch shorter; bill to frontal plumes $\frac{5}{10}$ ths to $\frac{5}{10}$ ths; tarse $\frac{7}{12}$ ths of an inch.

Hab. N. India. In the collection of John Gould, Esq.

Remark.—These three new species, together with *O. erythrocephalus*, Vigors, and *O. jouschistos*, Hodgs., will, I believe, upon further examination, prove to form two separate divisions, distinct from the genus *Orites*; the species named *erythrocephalus*, *leucogenys*, and *glaucogularis* forming one division, and *jouschistos* with *niveogularis* the second.

3. NOTICE OF SOME IMPERFECTLY-KNOWN SPECIES OF BIRDS
CONTAINED IN THE MUSEUM OF THE HON. EAST INDIA COM-
PANY. BY FREDERIC MOORE.

Fam. MERULIDÆ, Vigors.

Subfam. BRACHYPODINA, Swainson.

Genus IXULUS, Hodgson, P. Z. S. (1845) p. 23.

1. IXULUS OCCIPITALIS, Blyth.

Siva occipitalis, Blyth, J. A. S. Beng. xiii. p. 937. (1844.)

Ixulus occipitalis, Blyth, J. A. S. Beng. xiv. p. 552. xvi. p. 448;
Cat. B. Mus. A. S. Beng., p. 100.

Hab. Sikim, Nepal. (No. 955 Hodgson's Catalogue.)

"Colour dull brownish olive-green above, the shafts of the dorsal and scapular feathers pale; below much lighter and rufescent, the throat whitish, the feathers of the fore-neck having dark shafts: crown, nape, and lower tail-coverts ferruginous-brown, which also tinges the flanks; coronal feathers considerably elongated, and the occiput beneath the crest white; bill black; legs yellowish-brown.

"Length about 5 inches; of wing $2\frac{1}{2}$; tail 2; bill to gape $\frac{9}{16}$ ths; and tarse $\frac{7}{8}$ ths of an inch."

A single specimen only of this species was collected in Nepal by B. H. Hodgson, Esq.

2. IXULUS CASTANICEPS, Moore, n. sp.

Colour above dull brownish-olive, the shafts of the dorsal and scapular feathers pale; crown dark-chestnut, and subcrested, the frontal plumes short and scaly, and having pale margins, the occiput paler chestnut; behind the eyes whitish; ear-coverts chestnut; wings blackish, the secondaries and tertiaries with pale shafts; axillæ white; tail black, the three outer feathers graduated, and tipped obliquely externally with white, the next white at the extreme tip only, and the rest entirely black; the whole underparts of a dirty ruddy-white colour; bill reddish-brown; legs yellowish.

Length $5\frac{3}{4}$ inches; of wing $2\frac{3}{10}$; tail $2\frac{1}{4}$; its outermost feather $\frac{5}{8}$ ths less; bill to front $\frac{3}{10}$ ths; to gape $\frac{1}{2}$; and tarse $\frac{3}{4}$ of an inch.

Hab. Afghanistan.

This species is at once distinguished by the white tips to the tail feathers.

Genus STACHYRIS, Hodgson, J. A. S. Beng. 1844, p. 378.

3. STACHYRIS RUFICEPS, Blyth.

Stachyris ruficeps, Blyth, J. A. S. Beng. xvi. p. 452 (1847);
Catal. B. Mus. A. S. Beng. p. 150. Bonap. C. G. Av. p. 332.

The rufous-headed *Stachyris*.

Hab. Sikim; Nepal. (No. 923, Hodgson's Catalogue.)

"Allied in form and size to *St. pyrrhops*, but having the crown light ferruginous, and the chin and middle of the throat white, with

slight black central streaks to the feathers ; rest of the upper parts plain olive, and of the lower whitish, with a fulvous tinge on the sides of the neck and breast" [in some specimens the crown and nape are bright ferruginous, and the whole under-parts pale ferruginous]. Bill and legs pale horn-colour.

Length $4\frac{1}{2}$ inches ; of wing $2\frac{1}{8}$ th ; tail 2 inches ; bill to frontal plumes $\frac{4}{10}$ ths ; to gape $\frac{6}{10}$ ths ; and tarse $\frac{7}{8}$ ths of an inch.

Fam. PIPRIDÆ, Vigors.

Subfam. LEIOTHRICHINA.

Genus LEIOTHRIX, Swainson.

4. LEIOTHRIX CINEREA, Blyth.

Minla cinerea, Blyth, J. A. S. Beng. xvi. p. 449 (1847).

Leiothrix cinerea, Blyth, Catal. B. Mus. A. S. Beng. p. 100.

The grey *Leiothrix*.

Hab. S. E. Himalaya ; Nepal. (No. 671, Hodgson's Catalogue.*)

"Colour olive-grey above, tinged with green ; beneath white, tinged on the flanks with ashy, and showing some yellow along the middle of the abdomen ; a broad yellowish-white supercilium, and over this a black one ; the coronal feathers margined with black, and the cheeks mingled black and white ; orbital feathers subdued white ; wings and tail without markings, the tertiaries edged with grey, and the secondaries with very faint dull yellowish. Bill yellowish-horny above, paler beneath, legs yellowish."

"Length $4\frac{1}{2}$ inches ; of wing $2\frac{1}{4}$; tail $1\frac{3}{4}$; bill to gape nearly $\frac{5}{8}$ ths ; and tarse $\frac{3}{4}$ of an inch."

Allied in form and size to *L. castaniceps*.

4. NOTES ON THE HABITS OF INDIAN BIRDS. PART IV.

BY LIEUT. BURGESS.

Family SYLVIADÆ.

Genus THAMNOBIA.

THAMNOBIA FULICATA. INDIAN ROBIN.

This bird is well known in the Deccan, and is found not only about villages, walls and outhouses, but is also common on low stony hills. Dr. Jerdon says that "its familiar habits have gained for it its name of Indian Robin." It breeds during the months of March, April and May, building its nests in holes of walls and rocks, as also

* No. 887 of Mr. Hodgson's Catalogue was attached to this bird, which number was previously used for *Loxia himalayana* ; the above number being unoccupied, it is retained for the present species.

in hollows under tussocks of grass. I subjoin some notes on the subject:—"May 9, 1850. When passing outside the wall of a town, an Indian Robin flew off the wall and hovered before me, uttering a sharp hissing cry. Knowing by her manner that she had a nest near, I searched in the wall and found the nest, composed of rotten grass and straw, and some threads of woollen cloth; the nest contained three young ones, quite unfledged; their skin was of a black-lead colour."—"March 19, 1851. Found in a hole in the rocks the nest of the Indian Robin, containing two eggs."—"March 27, 1851. Found the nest of the Robin, containing two eggs, built at the foot of a little tuft of grass, in a hole amongst the roots."

The egg of this bird is of a very pale dusky blue spotted all over with light brown, and a few purplish spots here and there; length rather more than $\frac{6}{10}$ ths of an inch, by $\frac{6}{10}$ ths in width.

Dr. Jerdon says: "I have twice seen the nest of this bird; once, built among a heap of large stones raised from a bourn, and the bird made its nest during the time the well was being blasted, and continued the process of incubation till the young ones were hatched, when it was accidentally destroyed. On the other occasion it had built its nest in a hole inside the wall of a house. It has four eggs, light dusky bluish colour, spotted with purplish brown."

Genus PRINIA.

PRINIA INORNATA, Sykes. COMMON WREN WARBLER.

I believe that the nest and egg herewith forwarded, are the nest and egg of this little Warbler, though, not having shot the bird from her nest, I cannot say so positively. I think, however, that Dr. Jerdon's observation, though it differs in not mentioning the spots on the eggs, partly corroborates it. He says: "I once procured the nest of this species; it was open at the top, neatly enough made of grass well interwoven, without any lining, and fixed in a low bush very near the ground; it contained four blue eggs." The nest which I forward was found in the midst of some low jungle shrub, about a foot from the ground, during the monsoon. The egg is a little less than $\frac{6}{10}$ ths of an inch in length, by rather more than $\frac{4}{10}$ ths in width, of a rich blue ground, blotched and spotted with two shades of red-brown and pale purple.

Tribe CONIROSTRES.

Family CORVIDÆ.

Subfamily CORVINÆ.

Genus CORVUS.

CORVUS SPLENDENS, Vieill. COMMON INDIAN CROW.

All the noise and impudence of the tribe appear to be concentrated in the Common Indian Crow. They abound, I believe, in every part of the Indian continent; and when to their number is added their

thievish character, some idea may be formed of the nuisance they are. There is, however, a redeeming point in their character, viz. that they are very efficient scavengers. An officer of the Bombay army told me an anecdote illustrative of their sagacity, which he himself witnessed. Some crows had been sitting near a young dog, watching him whilst engaged with a bone. Having apparently concerted the plan, one of them alighted, stepped up and took a peck at the dog's tail; the dog, irritated, made a snap at the bully; on which a comrade, who appears to have been ready, made a dash and went off with the prize. He told me that he had seen another crow coolly walk off with a bit of bread, having actually taken it out of the hand of a child who was eating it. No one who has not been in India can form an idea of the noise which these crows make. In the morning, in Bombay, the tops of some of the bungalows are covered with them, squabbling and chattering, and it is reported that these black gentry are not proof against the seducing influence of the pots of toddy hanging up in the cocoa-nut trees. The juice of these trees is harmless before the sun is hot, but if taken after, has a decidedly inebriating effect. The common Crow begins to build at the end of April, forming its nest of sticks. It lays four eggs, of a dull greenish-blue, blotched and spotted with greenish-brown and grey, $1\frac{4}{10}$ th in. in length by rather more than 1 inch in width. The eggs, however, differ in size and colour.

CORVUS CULMINATUS, Sykes. LARGE BLACK CROW.

Less numerous, and of less intrusive and impertinent habits than the last. It breeds at the same time, and lays the same number of eggs as the Common Crow of India. The eggs are of a pale blue dashed and spotted with olive and grey, 1 inch and rather more than $\frac{2}{10}$ ths of an inch in length, by 1 inch and rather more than $\frac{2}{10}$ ths of an inch in width. The eggs of this Crow also vary in size and colour.

Family STURNIDÆ.

Subfamily STURNINÆ.

Genus PASTOR.

PASTOR TRISTIS, Temm. COMMON MYNA.

This sprightly talkative bird is common in Western India. It lives in small flocks, and is a close attendant on cattle, walking amongst them with a cheerful upright gait, its head inclined, now on this side now on the other, watching for insects, all the while talking and muttering with its peculiarly smooth and oily note. It is a great favourite with the natives, who keep numbers of them in cages. The Myna breeds during the month of May, making its nest in the holes of trees and buildings, also in stacks and ricks. It lays as many as six eggs, of a pale blue colour, 1 inch and rather more than $\frac{2}{10}$ ths of an inch in length, by $\frac{2}{10}$ ths of an inch in width. Eggs out of the same nest differ in size.

July 11, 1854.

J. S. Gaskoin, Esq. F.L.S., in the Chair.

The following papers were read:—

1. DESCRIPTIONS OF TWENTY-THREE SPECIES OF HELICEA, FROM THE COLLECTION OF H. CUMING, ESQ. BY DR. L. PFEIFFER.

1. *HELIX PAGODULA*, Pfr. *H. testa imperforata, gradato-conoidea, solidula, opaca, striatula et lineis impressis nonnullis obsoletis, spiralibus sculpta, sub epidermide decidua fulva albida; spira conoidea, apice obtusula; anfract. 6½, superis planis, 3 ultimis carina compressa, acuta, subelevata munitis, ultimo subprecedente, basi parum convexo; apertura subdiagonali, angulato-lunari; perist. simplice, marginibus distantibus, supero brevi, recto, basali ad insertionem subdilatato, adnato.*

Diam. maj. 15, min. 14, alt. 9 mill.

Hab. — ?

2. *HELIX BELLA*, Pfr. *H. testa perforata, globoso-turbinata, tenuiuscula, confertim striata, rufo-fusca, nitida; spira convexo-conica, subtilissime mucronulata; sutura levi, candido-marginata; anfr. 5½ convexiusculis, ultimo non descendente, spiram æquante, pallidiore, fascia lata albida cincto, basi inflato, circa perforationem pallido; apertura parum obliqua, truncato-ovali, longiore quam lata; perist. recto, margine dextro ab insertionem statim descendente, columellari substricto, declivi, superne breviter triangulatim dilatato.*

Diam. maj. 40, min. 34, alt. 28 mill.

Hab. Moluccas.

3. *HELIX YORKENSIS*, Pfr. *H. testa subobtectè perforata, turbinato-depressa, tenui, capillaceo-striata, sericea, rubello-cornea; spira convexiusculo-conoidea, vertice subtili; sutura levi, simplice; anfr. 5 convexiusculis, sensim accrescentibus, ultimo non descendente, periphæria subangulato, basi nitidiore, medio impresso; apertura diagonali, rotundato-lunari, intus rubello-margaritacea; perist. simplice, recto, marginibus subconniventibus, columellari supra perforationem calloso, dilatato.*

Diam. maj. 10, min. 8½, alt. 5 mill.

Hab. Cape York, N. Australia.

4. *HELIX CUMULUS*, Pfr. *H. testa perforata, turbinato-semiglobosa, tenui, levissime striatula, nitida, fulvo-cornea; spira convexo-conoidea, vertice subtili vix prominulo; sutura levi, submarginata; anfr. 5½ vix convexiusculis, lente accrescentibus, ultimo non descendente, periphæria subangulato, basi parum convexo; apertura diagonali, lunari; perist. simplice, recto, mar-*

NO. CCLXIX.—PROCEEDINGS OF THE ZOOLOGICAL SOCIETY.

ginibus distantibus, columellari leviter arcuato, superne subdilatato-reflexo.

Diam. maj. 10, min. 9, alt. 5 mill.

Hab. Manning River, E. Australia.

5. *HELIX OPHELIA*, Pfr. *H. testa perforata, turbinato-depressa, tenui, sub lente irregulariter capillaco-striata, haud nitida, diaphana, cornea, strigis angustis rufulis notata; spira convexiusculo-conoidea, vertice subtili, acutiusculo; anfract. 5 planiusculis, subeasertis, sensim accrescentibus, ultimo non descendente, subangulato, basi planiusculo; apertura obliqua, rotundato-lunari, intus nitida; perist. simplice, recto, marginibus vix convergentibus, basali strictiusculo, columellari declivi, juxta umbilicum angustissimum, pervium breviter reflexo.*

Diam. maj. 8, min. 7, alt. $4\frac{1}{2}$ mill.

Hab. Australia?

6. *HELIX ZOSTEROPHORA*, Pfr. *H. testa subclausa perforata, conoideo-depressa, solida, oblique striatula et lineis spiralibus confertissimis sub lente sculpta, albida, cingulo 1 costaneo ad peripheriam, secundo fusco-aurantiaco supra illud et fascia lata fusca in basi ornata; spira conoidea, acutiuscula; anfract. 6 convexiusculis, lente accrescentibus, ultimo non descendente, rotundato; apertura vix obliqua, transverse auriformi; perist. recto, margine supero brevi, dextro perarcuato, columellari declivi, leviter arcuato, superne calloso, dilatato, adnato.*

Diam. maj. 34, min. 29, alt. 19 mill.

Hab. —?

7. *HELIX VILLARIS*, Pfr. *H. testa perforata, convexo-depressa, tenuiuscula, levigata, oleoso-micante, albido-cornea; spira brevissime conoidea, vertice subtili; sutura levi, marginata; anfract. $5\frac{1}{2}$ convexiusculis, sensim accrescentibus, ultimo non descendente, periphæria rotundato, basi parum convexo; apertura obliqua, lunari, intus submargaritacea; perist. simplice, recto, marginibus vix convergentibus, columellari declivi, superne calloso, breviter reflexo.*

Diam. maj. $10\frac{1}{2}$, min. $9\frac{1}{2}$, alt. $5\frac{1}{2}$ mill.

Hab. Cape York, Torres Strait, Lizard Point, Australia.

8. *HELIX CALCULUS*, Pfr. *H. testa latissime umbilicata, discoidea, tenui, striatula, corneo-lutescente, rufulo obsolete strigata; spira plana, subimmersa; anfract. $8\frac{1}{2}$, convexis, angustissimis, ultimo non descendente, altiore quam lato, superne et basi subangulato; umbilico conoideo, $\frac{7}{10}$ diametri occupante; apertura obliqua, erecto-lunari; perist. simplice, recto, marginibus distantibus, basali perarcuato.*

Diam. maj. 10, min. 9, alt. $3\frac{1}{2}$ mill.

Hab. —?

9. *HELIX HORIOMPHALA*, Pfr. *H. testa umbilicata, lenticulari, tenui, striis obliquis et spiralibus sub lente confertissime decussata,*

vix nitidula, diaphana, pallide cornea; spira vix elevata, subconoidea; sutura lineari; anfract. $6\frac{1}{2}$ planiusculis, sensim accrescentibus, ultimo non descendente, periphæria acutissime carinato, basi paulo convexiore, carina secunda in umbilico lato, cyathiformi continuata munito; apertura perobliqua, tetragona; perist. simplice, recto, marginibus subparallelis, dextro subsinuato, basali leviter arcuato, angulum cum columellari formante.

Diam. maj. 25, min. 22, alt. 6 mill.

Hab. Japanese Archipelago.

10. **HELIX GONIOMPHALA**, Pfr. *H. testa umbilicata, conoidea, solida, oblique ruguloso-striata, fulva; spira convexo-conoidea, obtusiuscula; sutura plana, marginata; anfract. $6\frac{1}{2}$ planis, lente accrescentibus, ultimo superne convexiore, non descendente, periphæria subcompressæ et acute carinato, basi planiusculo, circa umbilicum perangustum, perivium distincte angulato; apertura perobliqua, depresso securiformi; perist. recto, marginibus distantibus, supero simplice, antrorsum arcuato, basali calloso, incrassato, leviter arcuato, columellari angusto, breviter ascendente.*

Diam. maj. $20\frac{1}{2}$, min. 19, alt. $9\frac{1}{2}$ mill.

Hab. —?

11. **HELIX FUNICULATA**, Pfr. *H. testa umbilicata, depressa, tenuiuscula, undique subruditer granulata, nitidula, rufa; spira brevissime conoidea, obtusa; sutura subcanaliculata; anfract. 6 convexiusculis, lente accrescentibus; ultimo rotundato, supra periphæriam fascia alba et carina funiformi cincto, antice descendente, basi inflato, circa umbilicum mediocrem, profundum subcompresso; apertura perobliqua, subangulato-lunari, intus margaritacea; perist. simplice, marginibus vix convergentibus, supero recto, basali breviter reflexo, columellari superne dilatato, fornicatim patente.*

Diam. maj. 29, min. 24, alt. 14 mill.

Hab. Torres Strait, Australia.

12. **HELIX CURVIDENS**, Pfr. *H. testa imperforata, globoso-conoidea, solidula, undique minute granulata, alabastrina; spira semiglobosa, vertice obtuso; sutura mediocri; anfract. 4 sensim accrescentibus, vix convexiusculis, ultimo antice vix descendente, periphæria carina subfuniformi, rugulosa, alba cincto, basi convexiore; apertura perobliqua, subtetragono-lunari; perist. simplice, marginibus distantibus, dextro recto, columellari calloso, perdilato, introrsum dente elongato, curvato munito.*

Diam. maj. 28, min. 24, alt. 17 mill.

Hab. —?

13. **HELIX MALACCANA**, Pfr. *H. testa aperte perforata, depressa, tenui, levigata, irregulariter pustuloso-punctata, castaneo-cornea; spira vix elevata; vertice subtili; sutura distincte marginata; anfract. $5\frac{1}{2}$, vix convexiusculis, sensim accrescentibus, ultimo latiore, non descendente, subdepresso, periphæria rotundato; apertura parum obliqua, late lunari; perist. simplice, recto, marginibus*

subconvergentibus, columellari breviter descendente, superne anguste reflexo.

Diam. maj. $15\frac{1}{2}$, min. 13, alt. 7 mill.

Hab. Province of Quedo, Straits of Malacca (Capt. A. Martin).

14. *HELIX CARNEOLA*, Pfr. *H. testa angustissime umbilicata, depressa, tenui, lavigata, nitida, pellucida, rubello-cornea; spira brevissime conoidea, vertice subtili, subprominulo; sutura canaliculata, submarginata; anfract. 6, convexiusculis, lente accrescentibus, ultimo non descendente, periphæria obsolete angulato, basi planiusculo; apertura obliqua, lunari; perist. simplice, recto, marginibus distantibus, basali leviter arcuato, columellari superne dilatato, patente, perforationem perviam non occultante.*

Diam. maj. $11\frac{1}{2}$, min. 10, alt. 5 mill.

Hab. Ceylon.

15. *HELIX SOLIDULA*, Pfr. *H. testa subobtectè perforata, conoideo-semiglobosa, solidula, oblique costulato-striata, fulva; spira convexo-conoidea, vertice subtili, acutiusculo; sutura submarginata; anfract. $5\frac{1}{2}$, vix convexiusculis, sensim accrescentibus, ultimo non descendente, compresse et acute carinato, basi lineis spiralibus obsolete notato, medio impresso; apertura diagonali, angulato-lunari; perist. recto, marginibus distantibus, dextro recto, acuto, columellari calloso, incrassato, perforationem angustissimam fere claudente.*

Diam. maj. 12, min. 11, alt. 7 mill.

Hab. — ?

16. *HELIX CRASSIDENS*, Pfr. *H. testa imperforata, subglobosa, solida, ponderosa, superne confertim arcuato-striata, unicolore atro-fusca; spira semiglobosa, obtusa; anfract. 5, vix convexiusculis, ultimo antice deflexo, periphæria obsolete angulato, basi subplanato, radiato-striato, nitido; apertura diagonali, trisinuato-lunari; perist. crasso, cæruleo-albido, marginibus callo crasso, dentem validum, triangularem, transversum gerente junctis, dextro brevi, vix reflexiusculo, basali dilatato, intus dentibus 2 subæqualibus munito.*

Diam. maj. $16\frac{1}{2}$, min. 15, alt. 15 mill.

Hab. Martinique.

17. *HELIX SUBVITREA*, Pfr. *H. testa umbilicata, trochiformi, solidiuscula, oblique distincte striata, striis spiralibus tenuissimis confertim decussata, sericina, lutescenti-hyalina; spira convexo-conica, obtusula; anfract. 6, convexiusculis, lente accrescentibus, carina funiformi, exserta munitis, ultimo antice vix deflexo, infra carinam medianam convexiore, antice turgidulo, juxta umbilicum angustum subcanaliculato; apertura perobliqua, subtriangulari-lunari; perist. albo, nitido, marginibus remotis, dextro expansiusculo, columellari substricto, extus reflexo, intus subdentato, ad insertionem in laminam fornicatam vitream dilatato.*

Diam. maj. $20\frac{1}{2}$, min. 19, alt. 15 mill.

Hab. Moluccas.

18. **HELIX STIMPSONI**, Pfr. *H. testa anguste et pervie umbilicata depressa, solidiuscula, confertim striatula, oleoso-micante, rufo-cornea; spira brevissime conoidea; anfract. 5½ planiusculis, sensim accrescentibus, ultimo non descendente, turgido, periphæria obsoletissime angulato, basi distinctius striato; apertura obliqua, rotundato-lunari, intus nitida; perist. calloso, albo, undique breviter reflexo, marginibus conniventibus, dextro subhorizontaliter abeunte, columellari subarcuato, sursum dilatato.*

Diam. maj. 15, min. 13, alt. 8 mill.

Hab. China.

19. **HELIX MARTINI**, Pfr. *H. testa umbilicata, conoideo-depressa, tenui, oblique confertim subgranulato-striata, vix sericea, pallide fulva; spira breviter conoidea, vertice subtili, obtusulo; anfract. 7-8, planiusculis, lente accrescentibus, ultimo turgido, antice non descendente, supra periphæriam subacute carinato; umbilico angusto, non pervio; apertura diagonali, oblique lunari, intus margaritacea; perist. albo, marginibus callo tenuissimo junctis, dextro breviter expanso, superne subangulatim producto, basali paulo latius revoluto, juxta umbilicum sinuato, subdilatato.*

Diam. maj. 35-43, min. 31-37, alt. 16-21 mill.

Hab. Pedang (Capt. A. Martin).

20. **HELIX APPENDICULATA**, Pfr. *H. testa umbilicata, globoso-depressa, solidula, oblique striata, fulvo-lutea, fasciis variis nigro-castaneis ornata; spira brevi, convexa, vertice subtili non prominulo; anfract. 6, vix convexis, ultimo rotundato, antice deflexo; apertura diagonali, rotundato-lunari, intus margaritaceo-albida; perist. simplice, atro-violaceo vel albo, marginibus subconvergentibus, dextro expanso, basali reflexo, columellari supra umbilicum mediocrem in appendiculam triangularem, planam, superne adnatam dilatato.*

Diam. maj. 41, min. 34, alt. 24 mill.

Hab. Australia.

21. **STREPTAXIS CONOIDEA**, Pfr. *Str. testa anguste et pervie umbilicata, subregulariter conoidea, solidula, superne oblique costulato-striata, virenti-alabastrina; spira gradato-conoidea, apice obtusa; anfract. 7, convexis, lente accrescentibus, hinc inde varicosis, ultimo periphæria subangulato, antice vix deviante, basi planiusculo, lævigato, nitido; apertura diagonali, lunari, intus margaritacea; perist. undique breviter revoluto.*

Diam. maj. 18, min. 16, alt. 10 mill.

Hab. Province of Quedo, Straits of Malacca (Capt. A. Martin).

22. **STREPTAXIS FORTUNEI**, Pfr. *Str. testa profunde arcuato-rimata, subperforata, depresso ovata, tenui, pellucida, hyalina; spira laterali, apice subconoideo; anfract. 6, convexiusculis, lævigatis, ad suturam striatulis, penultimo varicoso, gibboso, ultimo antrorsum deviante; apertura perobliqua, late lunari; pariete aperturali lamella mediocri intrante munito; perist. calloso,*

albo, undique expanso et reflexo, margine dextro superne repando, medio crassiore.

Diam. maj. 9, min. $6\frac{1}{2}$, alt. $5\frac{1}{3}$ mill.

Hab. Shanghai, China (Mr. Fortune).

23. *ACHATINA FLEXUOSA* (GLANDINA) Pfr. *A. testa subfusiformi-oblonga, solida, longitudinaliter flexuose plicato-striata, alba, epidermide fulva, strigis angustis castaneis irregulariter notata induta; spira conica, obtusa; sutura sublacera; anfract. 7, vix convexiusculis, ad suturam subcrenatis, ultimo antice deflexo, spiram superante, basi attenuato; columella arcuata, ad basin aperturæ elongato-semiovalis abrupte truncata; perist. obtuso, margine dextro repando, medio antrosum dilatato.*

Long 53, diam. 20 mill.

Hab. —?

2. DESCRIPTIONS OF SEVEN SPECIES OF CYCLOSTOMACEA AND AURICULACEA, FROM MR. CUMING'S COLLECTION.

BY DR. L. PFEIFFER.

1. *CYCLOSTOMA CASTUM* (CYCLOSTOMUS?), Pfr. *C. testa umbilicata, globoso-turbinata, tenui, striis elevatis obliquis et spiralibus confertissime reticulata, vix nitidula, candida; spira breviter turbinata, vertice truncatulo; anfract. 5, convexis, rapide accrescentibus, ultimo rotundato, fascia 1 obsoleta fulva infra medium signato; umbilico profundo, $\frac{1}{2}$ diametri fere æquante; apertura obliqua, subcirculari, intus concolore, nitida; perist. mediocriter expanso et revoluta, margine columellari in laminam latissimam, superne adnatam, umbilicum semioccurrentem dilatato. Operc. —?*

Diam. maj. 28, min. 22, alt. 16 mill.

β *Anfractu ultimo antice longe soluto, dorso carinato.*

Hab. Madagascar.

2. *CYCLOSTOMA VIRGO* (CYCLOSTOMUS?), Pfr. *C. testa umbilicata, turbinato-globosa, depressiuscula, tenui, confertim striata et liris spiralibus (quorum singulis validioribus) asperato-granulata, haud nitente, diaphana, albido-fulvescente, castaneo trifasciata; spira breviter turbinata, vertice submamillari; anfract. 5, convexis, rapide accrescentibus, ultimo rotundato; umbilico profundo, $\frac{1}{6}$ diametri vix superante; apertura obliqua, subangulato-circulari, intus nitida; perist. dilatato, undique subrectangule patente, nitido, albo, castaneo-maculato, superne subforficato, margine sinistro crenulato, supra umbilicum in laminam magnam superne adnatam dilatato. Operc. —?*

Diam. maj. 26, min. 21, alt. 15 mill.

Hab. Madagascar.

3. *CYCLOSTOMA CHLORITICUM* (*CYCLOSTOMUS*?), Pfr. *C. testa umbilicata, turbinato-depressa, tenuiuscula, oblique striatula et liris confertis, inaequalibus, basi validioribus cincta, vix nitidula, diaphana, albida, fasciis pallidissime lutescentibus ornata; spira brevi, submucronata; anfract. 5, convexis, rapide accrescentibus, ad suturam depressis, marginatis, ultimo rotundato, non descendente; umbilico profundo, $\frac{1}{3}$ diametri subaequante; apertura obliqua, subcirculari, intus nitida; perist. simplice, marginibus fere contiguis, supero sinuato, vix expansiusculo, basali reflexo, columellari dilatato, fornicatim patente. Operc. — ?*

Diam. maj. 34, min. 27, alt. 16 mill.

Hab. Madagascar.

4. *CYCLOSTOMA COMORENSE* (*OTOPOMA*?), Pfr. *C. testa subobtecte perforata, ovato-conica, solida, longitudinaliter capillaceo-striata et irregulariter rugosa, castanea, fasciis pallidis ornata; spira elongata, convexo-conica, obtusula; anfract. 5, superis parum convexis, spiraliter liratis, penultimo convexiore, ultimo rotundato, spiram vix aequante; apertura obliqua, angulato-ovali; perist. simplice, marginibus vix junctis, dextro recto, superne sinuato, flexuoso, sinistro calloso, superne dilatato, supra perforationem adnato. Operc. C. clathratuli.*

Long. 16, diam. 11 mill.

Hab. Comoro Islands, Africa.

5. *MELAMPUS DUPLICATUS*, Pfr. *M. testa imperforata, oblonga, solida, arcuato-striata, sub epidermide decidua, virenti fulva alba; spira brevi, conoidea, obtusula; sutura obsoleta; anfract. 5-6, contiguis, ultimo $\frac{3}{4}$ longitudinis formante, supra medium inflato, basi parum attenuato; apertura verticali, semielliptica, basi canaliculata; pariete aperturali callo nodiformi et infra eum plica lamelleformi transversa munito; columella plicis 2 obliquis, parallelis duplicata; perist. simplice, margine dextro leviter arcuato, intus subcalloso.*

Long. 10, diam. $5\frac{1}{2}$ mill.

Hab. — ?

6. *AURICULA DACTYLUS*, Pfr. *A. testa imperforata, ovato-oblonga, solida, longitudinaliter ruditer striata, infra suturam sulcis validis granulata (striis spiralibus in reliqua parte levibus), olivaceo-fusca, nitida; spira inflato-conica, apice obtusula, erosa; anfract. 7, superis planis, lente accrescentibus, penultimo lato, inflato, ultimo non descendente, $\frac{2}{3}$ longitudinis fere aequante, supra medium obsolete angulato, basi vix attenuato; apertura vix obliqua, sinuato-semiovali; plicis parietalibus 2 albis, superiore nodiformi, altera valida, obliqua; plica columellari vix torta, fere verticali, introrsum subsulcata, extus ad marginem producta; perist. crasso, recto, margine dextro superne valde sinuato, intus perincrassato, columellari dilatato, plano, adnato.*

Long. 52, diam. max. 25 mill.

Hab. Borneo.

This species and the following one are allied to *A. Juda*, L.

7. **AURICULA CHINENSIS**, Pfr. *A. testa subrimata, ovato-oblonga, solida, striis longitudinalibus et spiralibus minute granulata, fulvida, castaneo-strigata; spira conica, obtusa; sutura lineari, sublacera; anfract. 6, planiusculis, ultimo non descendente, $\frac{2}{3}$ longitudinis subæquante, basi rotundato; apertura verticali, sinuato-semiovali, paulo supra basin latissima; plicis parietalibus 2, superiore nodi-formi, altera valida, compressa, subobliqua, callo longitudinali pliciformi extus subjunctis; plica columellari valida, tecta; perist. recto, marginibus callo tenui junctis, dextro intus valide labiato, superne sinuato, columellari crasso, fornicatim reflexo, adnato.*

Long. 28, diam. 14 mill.

Hab. China.

3. DESCRIPTIONS OF TWO NEW SPECIES OF LAND SHELLS.

By J. S. GASKOIN.

(Mollusca, Pl. XXIX.)

1. **BULIMUS BIVARICOSUS**. (Pl. XXIX. fig. 4). *Testa oblongo-ovata, turrata, solida, longitudinaliter rugato-striata, castaneo-fulva; apice obtusiusculo; anfractibus 6-7 subventricosis, ad suturas depressiusculis, ultimo $\frac{2}{3}$ subæquante testæ longitudinis; apertura ovali, postice angulata, intus nitida rubeo-castanea, varicibus valde prominentibus duobus, uno ab antica parte aperturæ infra fornicem columellæ extenso, altero medio labri externi ad anticam partem aperturæ efformante; peristomate continuo, parte libera crassa, extus valde marginata albicanteque, columellari incrassata, juxta umbilicum reflexa; umbilico subobsoleto.*

Long. $2\frac{3}{10}$, lat. 1 poll.

Hab. in insula Lord Howe.

2. **HELIX SOPHIE**. *Testa subdiscoidea, tenui, diaphana, parum umbilicata, fulvescente, vix nitidula; spira circa apicem rufescente, apice obtusa, anfractibus 5-6 convexiusculis, celeriter accrescentibus, ultimo antice paululum descendente, striis elevatis spiralibus munitis, lineis tenuissimis undulatis irregulariter transversim decussatis; basi rotundata, confertim spiraliter levius striata; apertura obliqua, semiovali, intus pallidiore, nitidissima; peristomate simplice, recto, ad umbilicum reflexo.*

Alt. $\frac{6}{10}$, diam. maj. $1\frac{8}{10}$, diam. min. $1\frac{1}{10}$ poll.

Hab. in insula Lord Howe.

July 25, 1854.

John Gould, Esq. F.R.S., in the Chair.

The following papers were read :—

1. DESCRIPTION OF A NEW SPECIES OF *REGULUS*, FROM MADEIRA. BY EDWARD VERNON HARCOURT.

"Mr. Gould exhibited two specimens of a new species of *Regulus*, from Madeira, belonging to Edward Vernon Harcourt, Esq., and at the request of that gentleman gave them the name of *Regulus Maderensis*. Mr. Gould remarked that there could be no doubt of their specific value, as they not only differed from all the other European species, but from all the known species of the group. The following notes from Mr. Harcourt are given in his own words.

"This bird, which is a true *Regulus*, differs from all the three European species; namely, *cristatus*, *ignicapillus* and *modestus*. It may be described as follows :—

"*REGULUS MADERENSIS*.

"Beak black; forehead white, the white extending backwards and forming a small band; base of the crest black, the crest bright orange, differing in this respect from the *ignicapillus*, the crest of which is fiery red; from the beak to the eye a small black band, not extending beyond the eye, in which respect it also differs from *ignicapillus*; upper part of the neck and the whole of the back olive-green, with a bright mark of orange-yellow on each side of the neck; greater wing-coverts brownish-black, and tipped with buffy-white, forming a band; primaries brownish-black, with a narrow external edging of green; secondaries similar, but with a broad velvet black mark at the base; tail-feathers brownish-black, tinged with greenish-yellow on the outer web; chin and throat white slightly tinged with green; under surface white tinged with yellowish-green; under wing-coverts white; legs pale brown.

"Total length, 4 inches; from the carpus to the end of the wing $2\frac{3}{16}$; tarsus, $\frac{3}{4}$.

"Believing so small a bird to have but a limited range, and not finding it recorded among the birds of the Canary Islands by Webb and Berthelot, or among the birds of Africa, I am induced to regard it as new, and have ventured to propose for it the name of *Regulus Maderensis*.

"The sex of the birds I examined was not noted; but from the brightness of their colours, which surpassed those of the *ignicapillus*, they were probably males.

"This species lives in the laurel forest and in the *urze* (or tree heaths) in the northern and more unfrequented parts of the island of Madeira. I have frequently seen it on the wing, but could never get near enough to hear its voice."

2. DESCRIPTION OF A NEW SPECIES OF MOMOTUS.

BY JOHN GOULD, F.R.S. ETC.

Mr. Gould exhibited a species of *Momotus*, which he had had in his collection for many years, and which he believed to be entirely new to science. It is most nearly allied to the *Momotus Mexicanus*, but differs from that species in its much larger size, in the deeper chestnut-colour of the head, and in having a greyish-white mark under the eye, in lieu of the rich blue one observable in *M. Mexicanus*. These differences induce Mr. Gould to consider it to be distinct; in which opinion he was greatly confirmed by finding other examples, precise, & similar in colour, in the fine collection of the late Earl of Derby, now in Liverpool. He therefore proposed for it the name of

MOMOTUS CASTANEICEPS.

Crown of the head very deep chestnut, gradually blending on the back of the neck into the reddish grass-green of the back and wing-coverts; primaries and secondaries bluish green on the external web and next the shaft on the internal web, the remainder of the feathers being brownish-black, largely margined with buffy-yellow at the base, and with black shafts; upper tail-coverts and tail bluish-green, the latter with black shafts, and the spatulate terminations of the two centre feathers largely tipped with black; lores and lengthened ear-coverts black, the latter bounded above by a narrow line of blue; beneath the eye a narrow streak of greyish-white, bounded above by a finer streak of blue; under surface very pale green, becoming of a still paler and more buffy hue on the vent; on the centre of the breast a few lanceolate pendent feathers of a deep velvety black, narrowly bordered with pale blue; bill black; feet brownish-black.

Total length, $15\frac{1}{2}$ inches; bill, 2; wing, $5\frac{1}{4}$; tail, $8\frac{5}{8}$; tarsi, $1\frac{1}{8}$.

Hab. Guatemala.

3. ON THE ANATOMY OF THE GREAT ANTEATER

(MYRMECOPHAGA JUBATA).

BY PROFESSOR OWEN, F.R.S., V.P.Z.S.

Professor Owen read a paper on the Anatomy of the Great Anteater (*Myrmecophaga jubata*). The animal dissected was a full-grown female; it was received at the Gardens September 29, 1853, and died July 6, 1854. It weighed 62 lbs.; the weight of the brain was 3 oz. avoirdupois. The nipples were two in number, post-pectoral in position; the vulva and vent opened by a common cloacal aperture. The integument was thick; well-developed dermal muscles attached it to parts of the skeleton: the extent and attachments of these were described. The position of the viscera on opening the abdominal cavity was detailed. The intestinal canal is supported by one broad fold of peritoneum, as in reptiles. A long narrow continuous gland extends along the base line of the mesenteric part of the fold, and a parallel series of detached glands along the mesocolic part. Other

modifications of the peritoneum were described in relation to the support and connection of other viscera. The stomach consisted of two parts, a cardiac or membranous, and a pyloric or muscular part. The cardiac part is a subglobular cavity, measuring when distended 9 inches in its longest diameter, 7 inches in depth from the cardia, to the left of which the cavity bulges about 4 inches. The circumference of the cavity is 18 inches. The pyloric part is 3 inches in both longitudinal and vertical diameter, $2\frac{1}{2}$ inches across; its muscular part is so thick that it may be called a gizzard: it has not however the thick callous epithelial lining of a true ornithic gizzard.

The lining membrane of the stomach, as compared with that of the œsophagus, becomes more vascular and is furnished with a thinner epithelium at the cardiac orifice; but the lining membrane for some distance from that orifice, and between it and the entry to the gizzard, is smoother and covered by a thicker layer of epithelium than in the rest of the cardiac cavity, where the ordinary vascular villous gastric surface prevails: the one modification passes insensibly into the other. When fully distended, the cardiac cavity is smooth; as it contracts, the lining membrane falls into rugæ, very minute and irregular near the cardia, thicker and larger at the greater curvature, and assuming a longitudinal direction as they approach and converge towards the entry to the gizzard: at this part the folds were ten in number. In the distended stomach of the female Anteater the transverse diameter of the aperture was 1 inch 3 lines; its vertical diameter from 3 to 4 lines; the distance from it to the cardia, 3 inches.

In the smaller male Anteater, subsequently dissected, the gizzard was 2 in. 3 lines in length and 2 in. 9 lines in depth.

Vertically and longitudinally bisected, the cavity of the gizzard appeared as a gently bent canal about a line in diameter, suddenly expanding near the pylorus to receive a valvular prominence from the upper muscular wall, which projected towards that opening. The vertical thickness of the muscular wall above the canal was 1 inch 10 lines, below the canal 1 inch.

In the female Anteater Prof. Owen divided the gizzard, previously injected and distended with alcohol. When the gizzard was divided vertically and transversely the cavity presented a crescentic figure, with the horns directed upwards, on each side a large fleshy protuberance which descended into the cavity. On the lower part of the protuberance are three or four thick angular longitudinal ridges, which fit into the interspaces of similar ridges along the lower part of the cavity. The epithelium of the protuberance is thicker than that of the rest of the cavity, concealing in a greater degree, but not wholly, the vascularity of the subjacent injected membrane: the cellulo-vascular layer uniting the mucous with the muscular coats is most abundant at the walls of the gizzard opposite the protuberance. The thickness of the muscular wall, from the upper part of the gizzard to the bottom of the protuberance, is 2 inches, that of the lower wall of the gizzard 6 lines: the difference of thickness here, as compared with the same part in the smaller Anteater's stomach, is due to the more contracted state of the gizzard in the latter animal.

On exposing the pylorus from the duodenal side, it presents the form of a crescentic aperture 1 inch in diameter, but reduced to a transverse figure by the pressure of the upper protuberance against its inferior thickened ridge: the mucous membrane of both parts is produced into longitudinal wavy rugæ. A second pylorus might be described where these rugæ abruptly terminate and where the smooth surface of the duodenum begins: this aperture presents a full oval form, 1 inch 2 lines by 9 lines, when that intestine is distended.

The length of the animal, from the muzzle to the vent, was 4 feet 7 inches; the length of the head, 14 inches; of the tail, 33 inches. The length of the intestinal canal was 34 feet, the small intestines measuring 30 feet. The ileum, with a circumference of 1 inch 9 lines, rapidly expands at its termination to form the colon, without any cæcal beginning of the latter gut. This presents a circumference of $9\frac{1}{2}$ inches near its commencement, and gradually decreases to a circumference of 6 inches at the rectum. The inner surface of the first half of the small intestines is smooth and even; the last half, or ileum, is characterized by a single continuous longitudinal fold of the mucous membrane from 2 to 3 lines in breadth, extending along the side of the gut opposite the attachment of the mesentery. The modifications of the colon and rectum were described.

The weight of the liver was 28 oz.; that of the spleen, 2 oz. 6 drachms; that of the pancreas, 2 oz.: the form and structure of these viscera and of the gall-bladder were described. The renal and generative organs were next referred to.

The disposition of the pleura in the thorax, and the form and structure of the thoracic viscera were detailed. A peculiarity was noticed in the right auricle of the heart: the entry of the inferior cava was guarded as usual by the eustachian valve, the homologue of the posterior of the two semilunar valves which guard the communication between the sinus and the auricle in the heart of Reptiles; in the great Anteater there is a narrower valvular fold or ridge on the opposite side of the orifice of the inferior cava, answering to the anterior valve in the Reptiles' auricle, and a ridge is continued from both valves in the Anteater, towards the opening of the superior cava.

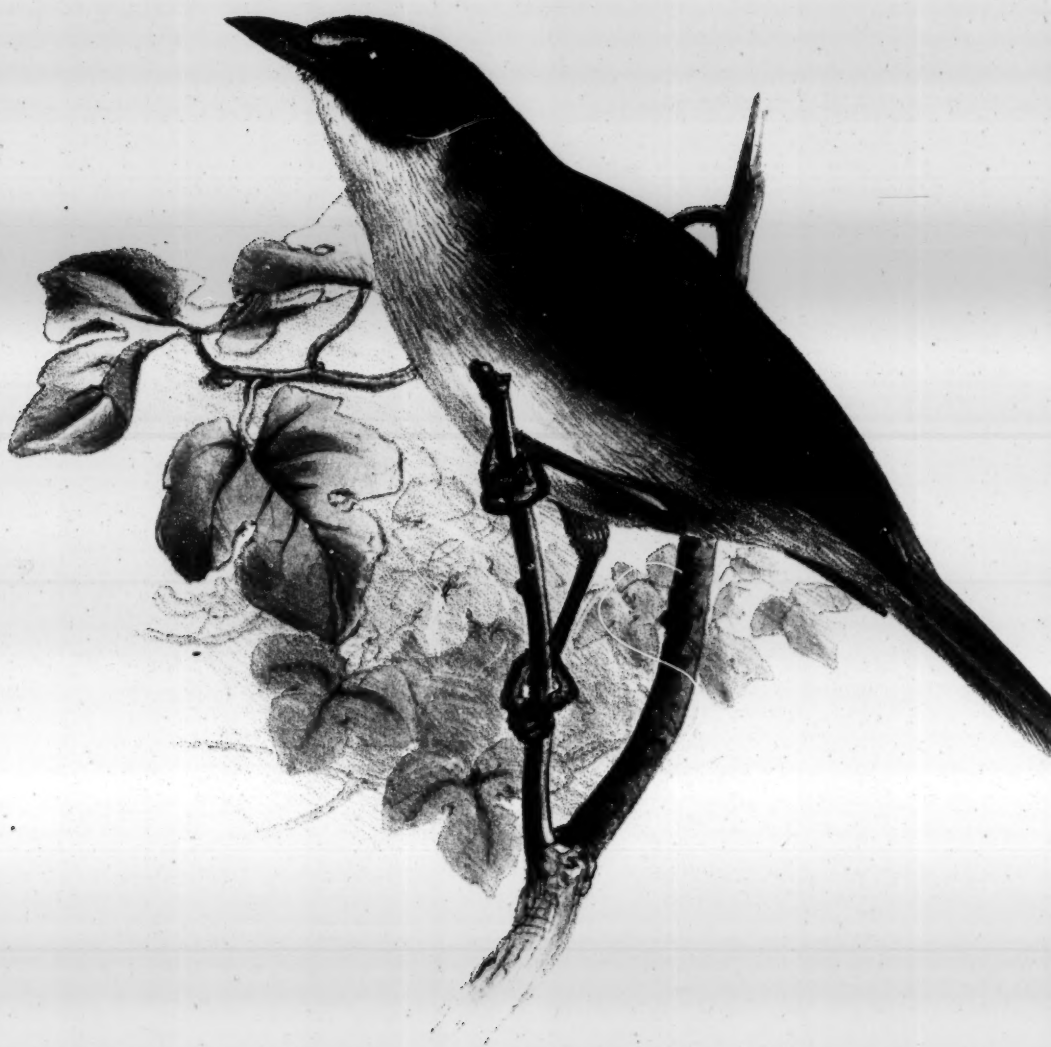
Of the salivary glands of the Anteater the submaxillary pair were those most developed and modified to supply the unusual quantity of adhesive saliva with which the long, slender and moveable tongue is bedewed: these glands extended over the fore part of the neck and chest, and were upwards of 16 inches in length and 2 inches in thickness.

The parotid gland retained its ordinary proportional size and relative position. The sublingual gland was represented by an extensively diffused thin layer of follicles, opening by many small pores upon the inner surface of the mouth. The labial glands were small, as were also the tonsils.

The muscles of the jaws were described.

The cavity of the mouth is susceptible of great dilatation, and presents the peculiarity of being extended far back beyond the root of





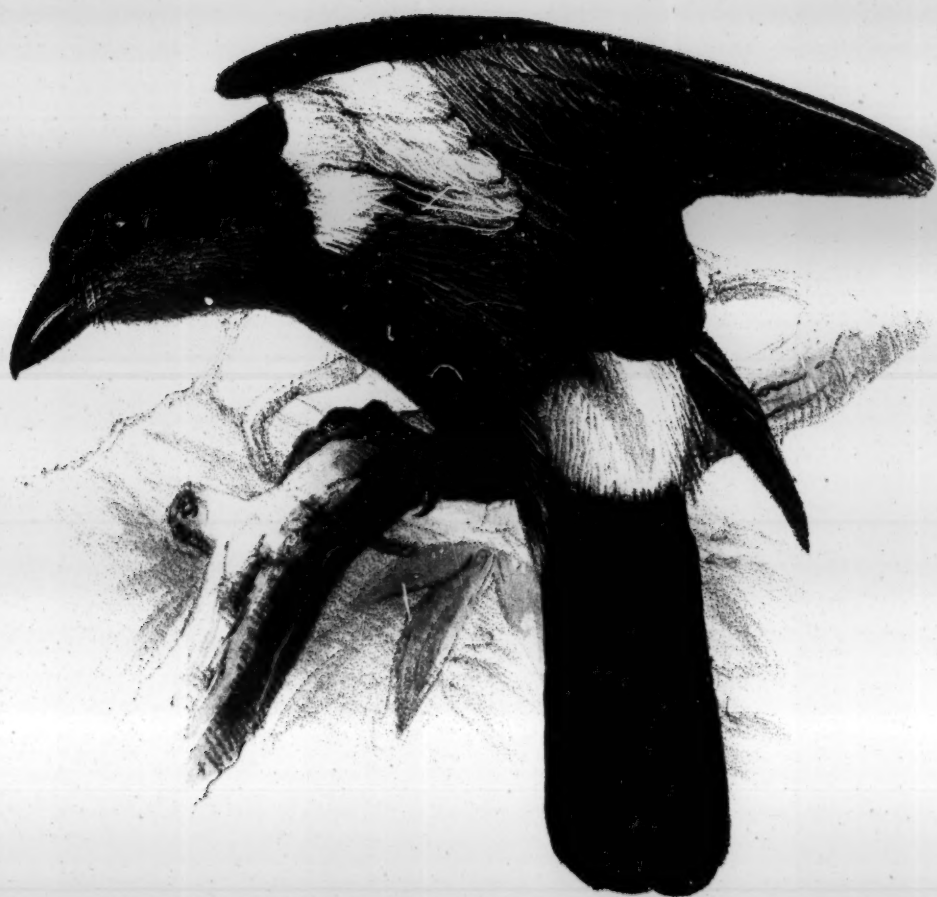
A. Wolf del.

M. & N. Hunt

CHLORECHINGUS MELANOTIS MELANOTIS

LXVII.





J. Wolf, del.

M. & N. Hanhart, imp.

TACHYPHONUS XANTHOPYGIUS, *Spix*

the tongue. The author accordingly defines, in his description, a postlingual and a prelingual part of the mouth. A hard longitudinal cartilaginous ridge projects downwards into the mouth from the inner side of each ramus of the jaw. The author conceives that the termites may be crushed by the action or pressure of the tongue against those callous ridges, which seem to occupy the place of teeth. A fossa descends between the epihyals, which the author called the epihyal pouch. The hyoid-arch has no immediate connection with the tongue, but is situated far behind the tongue, preserving its usual relations with the larynx.

The thyroid is ossified; the cricoid and arytenoids are cartilaginous.

The total length of the nasal passages is 22 inches, the last 8 inches being muscular and membranous, and extended backwards beyond the base of the skull, where the canals terminate in most other mammals.

The antero-posterior diameter of the base of the tongue was $3\frac{1}{2}$ inches; it rapidly diminishes to a cylindrical form, with a diameter of 8 lines, and is thus continued for 18 inches, gradually decreasing to its obtuse apex, which is 1 line in breadth. This long cylindrical tongue is composed almost wholly of muscular fibres, and covered by a smooth epithelium; the only papillæ are two fossulate ones (*papillæ vallatæ*) on the dorsum, about 2 inches in advance of the frenum; the muscles of the tongue and their action were minutely described; also those of the larynx and pharynx.

The brain, which weighed only 3 oz., presented a narrow, elongated, depressed form, the back part of the cerebral hemispheres resting against, but not overlapping, the cerebellum. The hemispheres showed a few symmetrical convolutions; they were united by a large corpus callosum: the olfactory lobes are very large and hollow. Many plexuses and other peculiarities of the vascular system were noticed.

This memoir will appear, illustrated with numerous figures, in the Transactions of the Society.

4. DESCRIPTIONS OF TWO NEW TANAGERS IN THE BRITISH MUSEUM. BY PHILIP LUTLEY SCLATER, M.A. (Aves, Pl. LXVIII. and LXIX.)

1. *CHLOROSPINGUS MELANOTIS*, Sclater (Pl. LXVIII.). *C. supra nigro-plumbeus, dorso imo brunnescentiore: alis caudaque brunnescentibus, illis penitus nigricantibus: loris et capitis lateribus cum regione auriculari nigris: subtus pallide ochraceo-rufus, mento summo nigricant; ventre medio dilutior: rostro nigro: pedibus pallidis.*

Long. tota 5.25 poll., alæ 2.5, caudæ 2.25.

Hab. in Nova Grenada. Mus. Brit.

Obs. Species rostro et forma *Chlorospingo atopileo* similis, sed ab hoc et aliis hujus generis colore corporis inferi ochraceo-rufo facile distinguenda.

This little species, of which there are two examples in the National Collection, both apparently Bogota skins, differs from all its congeners in the colouring of the lower surface of the body, which is of a pale reddish buff, growing much whiter in the middle of the belly. Above the plumage is lead-coloured, with a greenish tinge superinduced towards the lower part of the back. The wings and tail are brown, with slight greenish edgings; the ear-coverts and whole side of the face are black. In the second specimen, apparently not so mature, there is a light-coloured spot on the front, just above the nostrils. The bill of this species agrees with that of *Chlorospingus atropileus*, (Lafr.), in size, but is rather straighter in form, as in *C. verticalis*, (Lafr.).

2. *TACHYPHONUS XANTHOPYGIUS*, Scater. (Pl. LXIX.). *T. nigro-cinereus*, *subtus dilutior*: *axillis et tectricibus subalaribus albis*: *dorso postico citreo-flavo*: *rostro et pedibus nigris*.

Long. tota 5·8, alæ 3·1, caudæ 2·5.

Hab. in Nov. Grenada. Mus. Brit.

This bird seems intermediate between *Tachyphonus* and *Pyranga*, and might be placed in either of these groups. The white axillary feathers point to the former genus, the yellow rump to the latter. The bill, however, is more compressed than is usual in *Pyranga*, and agrees nearly with that of *Tachyphonus coronatus*, (Vieill.). The upper plumage has a mottled appearance, caused by the feathers being centrally black and broadly edged with cinereous. In the middle of the back is a perceptibly greenish gloss. The only examples I have seen of this as of the former species are in the British Museum, where Mr. G. R. Gray's uniform kindness affords me every opportunity of studying the collection under his care.

5. NOTES ON THE HABITS OF SOME INDIAN BIRDS.—PART V. BY LIEUT. BURGESS.

Family STURNIDÆ.

Subfamily STURNINÆ.

Genus PASTOR.

PASTOR ROSEUS, Temm. THE ROSE-COLOURED PASTOR.

This bird visits the Deccan in immense flocks to feed on the grain called *jowaree* which begins to ripen in the month of November, and is cut about March. The arrival of these birds is uncertain, in some years being earlier, in others later. On referring to notes made at the time, I find that in the year 1848 the first Rose-coloured Pastor was seen on the 28th of November, and the last on the 5th of April 1849. The first which I observed in the autumn of that year, was on the 16th of November. In the year 1850, I saw a large flock as early as the 24th of August; I transcribe the note: "August 24,

1850. Saw a large flock of the Rose-coloured Starlings with their broods to-day feeding in an open field, evidently on insects, as they were constantly in chase of them, flying." I never saw this bird so early as it was that year, and they arrived long before the jowaree was ripe. This grain when ripe, and before it is ripe, is their staple food. After it is cut and housed, I have observed them busily feeding on the flowers of the leafless Caper, a shrub very common in many parts of the Deccan, especially on the banks of the larger rivers. I have made many, but hitherto ineffectual attempts, to ascertain where these birds breed; that they do breed somewhere on the continent of India, there can be no doubt, as the young birds which I saw on the 24th of August 1850, were in brown plumage, and appeared as if they had not long left the nest. I was informed by a clever and well-informed Mharatta, who seemed to have considerable knowledge of the habits of various birds, that the Rose Starling retires to the Ghauts to breed. On visiting those mountains in 1849, I made many inquiries of the hill people, but was unsuccessful in getting any information from them. However, I think it very probable that these birds, after leaving the Deccan in March and April, break up into pairs, and retire to the ravines and forests in the Ghauts to breed. Like the common Starling, these birds congregate in immense flocks before going to roost, and it is a curious sight to watch their movements as they fly in clouds over their night haunts. Towards sunset they begin to collect from the grain-fields, and fly off in detached parties, at first containing only a few individuals. These soon amalgamate, and form large masses, which, as they dash, now upwards and now downwards, now in circles, at one time almost disappear, at another look like a rapidly passing cloud. As soon as the sun is down, they retire to the babool brakes that clothe the banks of the streams and rivers. These birds collect in such numbers on the small bushes and trees on the outskirts of the grain-fields, as to make them appear as if loaded with rich, rosy blossoms, and to make one wonder that the tree is not broken down with their weight.

Family FRINGILLIDÆ.

Subfamily COCCOTHAUSTINÆ, Swain.

Genus EUPLECTES, Swain.

EUPLECTES (BENGALENSIS?).

I forwarded a paper on the nidification, habits, &c. of this little bird, together with specimens of the skins, nests and eggs, in the year 1852. The paper was read, and the specimens exhibited at the meeting of the Society on July 27th, 1852. Repetition therefore is needless.

Genus *AMADINA*, Swain.Subgenus *SPERMESTES*.*SPERMESTES CHEET*, Sykes.

This is a very common little bird, living in flocks, to be found in hedges and low bushes, and is, I believe, partial to those of the leafless Caper. It breeds, I conclude, twice in the year, as I have found its nest in the months of November and March. The nest in two instances was formed of the flower-stems of the silk-grass, which is abundant in the beds of streams; it was lined with feathers and the silky seeds of the grass; its shape was that of a hollow ball. The largest number of eggs I have found was six, but I see that Col. Sykes found as many as ten. The eggs are very small and of a pure white colour, rather more than $\frac{6}{10}$ ths of an inch long by $\frac{5}{10}$ ths of an inch wide. These little birds are often to be seen on the ground picking up grass-seeds, and so close together that several may be killed at a shot: they do not take long flights, but merely from bush to bush. I saw numbers of them in the leafless Caper on the banks of the river Bheema.

Subfamily *FRINGILLINÆ*.Genus *PYRGITA*, Swain.*PYRGITA DOMESTICA*. HOUSE-SPARROW.

Common enough in India. It breeds during the monsoon. I saw them building in the month of August, and its habits, mode of building its nest, &c., are similar to those of the Sparrow at home.

PYRGITA FLAVICOLLIS, Frankl. YELLOW-NECKED SPARROW.

Of the time of breeding or nesting habits I know nothing, but Dr. Jerdon in his Catalogue says, "It is said to breed in holes of trees. The egg is of a greenish-white, much streaked and blotched with purple-brown: I obtained one from the body of a female."

Genus *EMBERIZA*.*EMBERIZA MELANOCEPHALA*, Jerdon.

This handsome Bunting is very common in the Deccan when the grain crops are becoming ripe. The Patel or headman of the town of Jintee, near the river Bheema in the Deccan, assured me that these birds, or some of them, remain to breed in the thick babool copses that clothe the banks of the river near that town, but I did not obtain the nests or eggs. I believe that the greater part migrate much about the same time as the Rose-coloured Pastor.

Subfamily ALAUDINÆ.

Genus ALAUDA.

ALAUDA DEVA, Sykes.

I have some eggs which I believe to be those of this lark, though on account of the similarity of the two or three species that inhabit the Deccan it is very difficult to state this positively. I obtained the eggs on the 11th of September; the nest was composed of a few stems of grass collected together, and forming a very slight receptacle for the eggs. Birds of this species breed twice during the year; I have obtained their eggs during the months of May, September, and October. They lay but two eggs, of a pale mottled brown colour, with a band of the same round the larger end; they are rather more than $\frac{7}{10}$ ths of an inch long by nearly $\frac{6}{10}$ ths of an inch wide.

6. CATALOGUS MOLLUSCORUM PNEUMONATORUM INSULARUM MADERENSIVM: OR A LIST OF ALL THE LAND AND FRESH-WATER SHELLS, RECENT AND FOSSIL, OF THE MADEIRAN ISLANDS: ARRANGED IN GROUPS ACCORDING TO THEIR NATURAL AFFINITIES; WITH DIAGNOSES OF THE GROUPS, AND OF THE NEW OR HITHERTO IMPERFECTLY DEFINED SPECIES. By R. T. LOWE, M.A., CORRESPONDING MEMBER OF THE ZOOLOGICAL SOCIETY, ETC.

The list of Madeiran Land Mollusks has been considerably extended of late years, in some measure by my own researches, but incomparably more by the discoveries of Mr. Wollaston and Mr. T. S. Leacock. To the penetrating eye and accurate discriminative powers of the first-named able and accomplished naturalist are due not less than thirty species, which had hitherto escaped notice; belonging principally to the genus *Pupa*, yet comprising several fine and some most curious new forms of *Helix*: whilst his rich collections of *Achatina* in Porto Santo have enabled me to establish at least twice the number of species previously found there, and to fix, on more substantial grounds, the diagnoses of the rest. Mr. Leacock also has discovered several new species, and by his exact observations helped materially in many cases to confirm or elucidate the characters assigned to those already noticed.

These additions being so considerable, it seemed better, instead of intercalating them in a late republication of some former papers on the Fauna and Flora of Madeira*, to furnish in a distinct form a fresh and complete list of all the species, recent and fossil: giving the diagnoses of those only which remain imperfectly described, or which have been discovered since 1830; and reserving fuller details

* Primitiæ et Novitiæ Faunæ et Floræ Maderæ et Portûs Sancti, &c. Cum Appendice. Van Voorst, London, 1851.

for a larger work on the whole subject. Such a catalogue, containing some account of every ascertained native species, will be acceptable, it is believed, at once to the geologist and helicologist.

The groups into which the species are distributed were chiefly settled previously to my acquaintance with the very useful work of Dr. Albers, entitled 'Die Heliceen, nach Natürlicher Verwandtschaft,' &c.; Berlin, 1850: but I gladly embrace this occasion to acknowledge my obligations in various particulars to that interesting and important work, and to record my recollection of much pleasant intercourse and friendly communication in Madeira, during the winter of 1850-51, with its able author.

Lea Rectory, June 12th, 1854.

MOLLUSCA GASTEROPODA PNEUMONATA.

Division A. TERRESTRES.

Family I. LIMACIDÆ.

Genus 1. ARION, Fér.

1. *A. ATER* (L.) var. *limbata*. *Limax ater* var. ϵ , Müll. Verm. i. p. 3. *A. empiricorum* var. ι , Fér. Tabl. p. 17. *A. empiricorum* varr. α et δ , Prim. Faunæ et Fl. Mad. p. 39, nec. Fér.
Hab. in Madera.

Genus 2. LIMAX, (L.) Fér.

2. *L. GAGATES*, Drap. var. α . *nigra*, Fér. Tabl. p. 22. *L. gagates*, Drap. p. 122. t. 9. f. 1, 2. *L. antiquorum* var. α , Prim. p. 39, nec Fér.
Hab. in Madera.

3. *L. CINEREUS*, Müll. (*maximus*, L.) var. *pardalis*. *L. antiquorum* var. ϵ , Fér. Tabl. p. 20.
Hab. in Madera.

4. *L. FLAVUS*, L. var. *virescens*. *L. variegatus*, Drap. p. 127. *L. variegatus* β , Fér. Tabl. p. 21; Prim. p. 39.
Obs. *L. antiquorum* η , Prim. p. 39, hic potius quam (ut in Prim. ed. 2. (1851) App. p. vi) ad *L. antiquorum* var. η , Fér. (*L. cinereus* β , Drap.) referas.
Hab. in Madera.

5. *L. AGRESTIS*, L.
Var. *punctata*. *L. agrestis* β , Müll. p. 9; Drap. 126. t. 9. f. 9. *L. agrestis* ϵ , Fér. p. 21; Nilss. p. 9; Prim. p. 39.
Var. *maculata*. *L. reticulatus*, Müll. p. 10. *L. agrestis* δ , Nilss. p. 9. *L. agrestis* η , Fér. p. 22; Prim. p. 39.
Hab. in Madera.

Family II. TESTACELLIDÆ.

Genus 1. TESTACELLA, Cuv.

6. T. HALIOTIDEA, Drap. 121. t. 8. f. 43-48, et t. 9. f. 12-14. *Testacellus haliotideus*, Fér. p. 26; Sow. Gen. f. 1-6; Gray, Man. p. 124. t. 3. f. 19, 20; Prim. p. 40.

Hab. in Madera, rariss.

Obs. Animal ochraceo-flavum.

7. T. MAUGEI, Fér. Tabl. pp. 26, 27; Sow. Gen. f. 7-10; Gray, Man. p. 5. t. 3. f. 18; Prim. p. 40.

Hab. in Madera, parum vulg.

Obs. Animal olivaceo-fuscum, ora pedis aurantio-carnea.

Family III. HELICIDÆ.

Genus 1. VITRINA, Drap.

8. V. TENERIFFÆ, Quoy et Gaim. *Testa haliotidiformis valde depressa squamato-planata transverse oblonga tenuissima membranacea succineo-virente nitida lævigata, sæpe remote et obsolete lineis impressis exoletis raris spiraliter sulcato-pectinata, striis transversis accretionis vel subtilissime (oculo armato) quasi crenulato-fimbriatis v. ciliato-striolulatis; anfractibus duobus planatis, ultimo vastissimo, sutura obsoleta, spira minima laterali planata (apice depressa) intus incompleta aperta, columella (revera nulla) laxè spirali aperturaque auriformi faciem inferiorem adæquante ad apicem usque patulis, peristomate infra et intus sæpissime membranaceo-limbato.*

Animal pallide cinereum, corpore immaculato, pedis limbo intus immarginato lineis pallidis transversis tessellato.

Testæ diam. maj. 15-17, min. 11-13, alt. $5\frac{1}{2}$ - $7\frac{1}{2}$, axis 3- $3\frac{1}{2}$ mill. Anfr. 2- $2\frac{1}{2}$.

V. Teneriffæ, Quoy et Gaim. (Dumont, Voyage de l'Astrolabe) Zool. vol. ii. p. 142, Atlas Moll. t. 13. f. 4-7 (animal), 8, 9 (shell), 9' (tooth of animal). *V. Lamarckii*, Webb, Syn. Moll. Canar. p. 7; ejusd. Hist. Canar. tom. ii. part ii. p. 53. no. 37; Pf. Mon. Hel. ii. 506. *V. Ruivensis* (Couth. MSS. Gould) Pf. ii. 507. *V. Behnii*, Lowe, Syn. Diagn. p. 3. no. 1; Prim. (ed. 1851) App. pp. vii. xiii. *V. Lamarckii* status, Prim. (ed. 1830) pp. 40, 68. t. 5. f. 1 b.

Hab. in Madera, vulg.

Speciem icone Primitiarum supra citata jam plures annos indicatam primus mecum in Madera distinctam agnovit cl. Behn, Prof. Kielensis. Nomen vero ejus in honorem jampridem datum, sed nuperius publice factum, cedat priori cl. Quoy et Gaim. : qui rectissime pro specie a *V. Lamarckii*, Fér. distincta (ut nuperrime compertum habeo) primi ediderunt. Striolæ spirales quodammodo *Haliotidis tuberculatae* L. vel *Sigareti haliotoidei* Lam. omnino vero obsoletissimæ.

9. *V. MEDIA*. *T. parvula subhaliotidiformis v. sigaretiformis depressa subplanata transverse oblongiuscula tenuis pellucido-succinea subvirescens pallida nitidissima levissima; anfr. tribus convexiusculis, ultimo subplanato antrorsum oblique ampliato v. subproducto, sutura distinctiuscula subimpressa, spira parva subcentrali convexiuscula (apice subprominula) intus completa; apertura sub-lunato-auriformi antice oblique deorsum subproducto.*

Animal (semel observatum) nigricans, corpore fusco, nigro maculato, postice colloque late roseo v. roseo-castaneo; pede subtus pallido, limbo fusciscente unicolore (nec tessellato) linea nigra interrupta intus marginato.

Diam. maj. 5-10 v. $11\frac{1}{2}$, min. $3\frac{3}{4}$ - $7\frac{1}{2}$ v. 8, alt. $2\frac{1}{2}$ - $4\frac{1}{2}$ v. 5, axis 1-2 v. $2\frac{1}{4}$ mill. Anfr. $2\frac{1}{2}$ -3.

V. marcida, (Gould) Pf. ii. 507?

Hab. in Madera (Rib. Frio) rarior, et in Portu S^{to}.

Obs. Inter *V. Teneriffæ* et *V. Lamarckii* media, huic propior.

10. *V. LAMARCKII* (Fér.). *T. helicoidea transverse subgloboso-depressa v. subinflato-ventricosa bullata tenuis pellucido-succinea aurea subvirescens nitidissima lavigata, raro obsoletissime spiralliter sulcato-pectinata et subrugulosa, striis accretionis subtilissime crenulato-fimbriolatis; anfr. 3-4 convexiusculis, ultimo subventricoso, sutura distincta impressa, spira subcentrali convexiuscula (apice prominula subexserta) intus completa; apertura transverse lunato-ovali subrotundata, peristomate æqualiter arcuato.*

Animal nigricans, corpore fusco, nigro maculato; pede subtus pallido, limbo intus immarginato fusciscente unicolore (nec tessellato).

Diam. maj. $11\frac{1}{2}$ - $14\frac{1}{2}$, min. 8- $11\frac{1}{2}$, alt. 6- $7\frac{1}{2}$, axis $3\frac{1}{2}$ - $4\frac{1}{2}$ mill. Anfr. 3- $3\frac{1}{2}$.

Helicolimax Lamarckii, Fér. Hist. t. 9. f. 9; Zool. Journ. iv. 338-344, tab. suppl. 38. f. 1-5.

Vitrina Lamarckii, Prim. 40. t. 5. f. 1 a.

V. nitida, (Gould) Pf. ii. 507?

Hab. in Madera vulgatiss.

Obs. 1. *V. Lamarckii*, Webb et Berth. neonon cl. Pf. ii. 506, ex descriptionibus certissime ad *V. Teneriffæ*, Quoy et Gaim. referuntur. Synonymia ambas species amplectitur.

Obs. 2. *Vitrinæ* tres Maderenses, sc. *V. Teneriffæ*, *V. media*, et *V. Lamarckii*, species tres Europæas, sc. *V. elongatam*, *V. diaphanam*, et *V. pellucidam*, Drap. miro perquam analogiæ ordine repetunt.

Genus 2. *HELIX*, L.

§ 1. *LEPTAXIS*.

(Typ. *H. erubescens*, Lowe.)

Testæ imperforatæ (jun. perforatæ) subconoideo-globosæ, statu saltem juniore subcarinata subtenues glabræ lavigatæ leviter ruguloso-malleatæ late coloratæ fasciatæ. Anfr. 4-5, ultimo leviter cari-

nato, undique convexo-rotundato, antice deflexo carina evanescente. Apertura lunato-rotundata. Peristoma fere rectum simplex acutum v. obtusiusculum, intus sublabiatum, marginibus æqualiter omnino rotundato-arcuatis, labris remotis disjunctis. Axis (sæpe roseus) tenuis verticalis intrans, labro arcuatim junctus.

11. H. MEMBRANACEA, Syn. Diagn. p. 3. no. 2. *T. imperf. depresso-globosa subcarinata tenuissima membranacea flexilis undatim ruguloso-malleata nitidiuscula roseo-flavescens rarius virescens pellucida, opaco-lacteo ad carinam suturamque præsertim sed et alicubi coagulato-liturata, fascia carinali unica angusta opaco-albida; spira convexo-depressa, apice obtusa; anfr. 4, cito crescentibus convexiusculis, ult. antice vix descendente, sutura distincta; apert. transverse lunato-ovali, labris disjunctis, lamina ventrali tenuissima v. nulla; perist. columellaque simplicibus acutis.*

Diam. maj. 10-12, min. $8\frac{1}{2}$ - $10\frac{1}{2}$, alt. 7-9, axis 4-6 mill. Anfr. 4- $4\frac{1}{2}$.

Vitrina marcida, (Gould) Pf. ii. 507?

Hab. in Madera vulg.

Obs. 1. Animal (vera *Helix*, nec *Vitrina*) pede vix intra testam retractili.

Obs. 2. Cum *H. furva* juniore, cui simillima, haud confundenda. Differt testa nitida læviore, semper imperforata, membranacea tenuiore flexili (potius quam fragili), pallidiore pellucidiore lacteo coagulatum liturata efasciata, spiræ anfr. convexioribus apice obtusiore, carina obsoletiore nec fusco-fasciata v. tessellato-maculata.

12. H. FURVA, Prim. p. 40. t. 5. f. 2; Küst. M. et C. p. 231. no. 202. t. 29. f. 20-22; Pf. i. 29.

Hab. in sylvis Maderæ, rarior.

Obs. Neglectis prout levioribus varr. α . et β , Prim. l. c., dignoscuntur varr. duæ: α . major, fusco tessellatim unifasciata (Prim. l. c. t. 5. f. 2; Küst. M. et C. l. c.); et β . minor tenuior carina obsoletiore.

13. H. ERUBESCENS, Prim. pp. 40, 41; Küst. M. et C. p. 38. no. 422; Pf. 1. 270.

Hab. in sylvis Maderæ, et in Ins. Desertis.

Obs. 1. Distinguuntur varr. 3 Maderenses (α , β , γ) minores v. majores, fasciatæ v. efasciatæ, spira plus minus exserta, cum subvar. rhodostomatibus v. leucostomatibus; adjecta var. δ , in Ins. Des. Australi degente, maxima inflatiuscula tenuiore læte colorata roseo-fulva, subquinquefasciata (*H. hyæna*, Syn. Diagn. p. 3. no. 3).

Obs. 2. Icon. Prim. l. c. t. 5. f. 3. ad Subv. 1, Küsteri l. c. t. 71. f. 5, 6. ad Subv. 2, var. α . referendæ.

Obs. 3. *H. advena*, Webb, Syn. Moll. Canar. App. p. 21. no. 1. Exempla orig. typ. cl. Auct. in Mus. Brit. reposta, ad *H. erubescens*, var. γ , nostram certissime pertinentia, ob characterem peculiarem procul omni dubio ex Ins. Desertis Septentr. v. Majore Media, nec (quod revera ipse cl. Auctor minime asseveravit) ex Ins.

Canariensibus proveniunt. *H. erubescens* ideoque Maderæ Insulisque Desertis (in Portu S^{to} omnino deest) species adhuc omnino propria.

§ 2. KATOSTOMA.

(Typ. *H. phlebophora*, Lowe.)

T. imperf. (jun. perf.) conoideo-globosæ, statu saltem jun. subcarinatae, subsolidiusculæ granulatae plicatae v. striatae, late coloratae fasciatæ. Anfr. 5, ult. angulato s. leviter carinato subdepresso, antice valde et subito deflexo, penult. antice gibboso. Apert. perobliqua prono-deflexa coarctato-rotundata v. ovalis plerumque circinata. Perist. simpliciusculum rectum acutum v. obtusiusculum subsolutum, labris conniventibus callo sæpe relevato junctis v. continuis, basali axin versus incrassato dilatato-planato. Axis (roseus) latens obsoletus.

14. *H. PHLEBOPHORA*, Prim. p. 41; (*H. nivosa*, Sow., Fér.; *H. exalbida*, Wood; *H. simia*, Fér., sunt status albicantes v. decorati).

Obs. Varr. α . *chlorata* (Icon. Prim. l. c. t. 5. f. 6); β . *planata*, carinata; γ . *decolorata* (*H. nivosa*, Sow. Zool. Journ. i. p. 56. t. 3. f. 3; *H. phlebophora*, (Lowe) Küst. M. et C. t. 7. f. 7, 8); δ . *scrobiculata* (*H. craticulata*, Syn. Diagn. p. 4. no. 6).

Hab. (in Madera nunquam) in Portu S^{to} insulisque parvulis proxime circumjacentibus, nec alibi: α . vulgatiss.: β . rariss.: γ . (semifoss. et recens) rarior: δ . vulg. in Ins. Ferro juxta Portum S^m, nec alibi.

15. *H. PSAMMOPHORA*, Syn. Diagn. p. 4. no. 5. *T. imperf. subpyramidato-globulosa ecarinata solidiuscula subobsolete inæquistriata grossiuscule areolato-granulata, striolis tenuissimis obsoletis spiralibus obliquas inæquales (accretionis) rudiusculas subtilissime decussantibus; spira exserta pyramidata producta, apice acutiuscula lævigata, sutura impressa strictiuscula; anfr. 5½ convexis, penult. antice gibboso, ult. antice longe rapideque descendente; apert. constricta coarctato-rotundata subcirculari; perist. continuo simplici acuto, axin versus dilatato-plano, labris conniventibus continuo callo relevato junctis.*

Diam. maj. 12–13, min. 11–12, alt. 12–10 mill. Anfr. 5–5½.

Hab. in Portu S^{to} semifoss. in arena calcarea, nec recens; vulg. T. V. Wollaston.

Obs. *H. phlebophoræ* γ , forma habituque proxima. Sculptura insigniter differt.

§ 3. MACULARIA, Alb. p. 80.

(Typ. *H. niciensis*, Fér.)

T. imperf. v. obtecte perf. subgloboso-depressæ sæpissime subcarinatae subtenuiusculæ late coloratae interruptim s. maculatim fasciatæ. Anfr. 4½–5 convexiusculi, ult. depresso plerumque angulato s. le-

viter carinato, antice deflexo. Apert. obliqua transverse lunato-ovalis. Perist. acutum v. obtusiusculum labiatum, labris remotis disjunctis, basali axin versus oblique adscendente parum strictiusculo incrassato dilatato-reflexo v. expanso, raro colorato. Axis latens obsoletus.

Obs. 1. Species Porto-Sanctano-Maderenses paullum aberrantes; prima (*H. chrysomela*) ad Archelicem Alb. tendente. *H. fluctuosa* eodem ad *H. chrysomelam* gradu stare videtur quo *H. Paciniana*, Phil. (vieta, Rossm.) ad *H. muralem*, Müll.

Obs. 2. Sectio Macularia per *H. muralem*, Müll. subundulato-plicatam arcte Katostomatibus (*H. phlebophoræ* imprimis) adjuncta; ut per *H. serpentinam*, Fér. et *chrysomelam*, Pf. ad Archelices tendit.

16. *H. CHRYSOMELA*, Pf. *T. imperf. globuloso-depressa* (Archelicoidea) obtuse carinata v. angulata nitidiuscula distincte ruguloso-malleata; spira convexiuscula, apice obtusa, sutura distinctiuscula parum impressa; anfr. 5 planiusculis, ult. antice parum deflexo, subtus subplanato, carina exacte media antice evanescente; apert. transverse ovato-lunata depressa; perist. recto incrassato obtuso, axin versus strictiusculo calloso-dilatato convexo; labris remotis parallelis callo expanso subtilissime arenulato junctis; perist. intus calloque parietali coloratis (aurantio-fulvis v. ochraceo-gilvis, raro citrinis v. cerinis).

Diam. maj. 9–10, min. 7–9, alt. $5\frac{1}{2}$ –7, axis 4–5 mill. Anfr. 5.

H. chrysomela, Pf. i. 281 (habit. “Brasilia” erronea); Ib. p. 447; Küst. M. et C. p. 241. no. 709. t. 113. f. 6–8.

H. anostoma, Lowe MSS. olim.

Hab. in arena (recentiore?) calcarea Portûs S^u semifossilis, nec recens, ubi ipse A.D. 1828 abundanter inveni.

Obs. Testæ optime conservatæ, sed præter faucem omnino decoloratæ cretaceæ sc. candidæ subpellucido-flavescentes, lituris opacolacteis coagulato-rugulosæ: quibusdam fasciis angustis fuscis subinterruptis evanidis v. indistinctis, duabus supra, unica infra carinam, vittatis. Species elegans, Archelices Alb. accedens, *H. syriacæ* (Ehr.) Pf. i. 131 (*H. onychina*, Rossm.) etiam affinis.

17. *H. FLUCTUOSA*, Syn. Diagn. p. 3. no. 4. *T. imperf. depresso-trochoidea* acute carinata obsolete ruguloso-malleata lavigata; spira plerumque depressa, apice obtusa, sutura obsoletiuscula; anfract. $5\frac{1}{2}$ planatis, ult. antice parum deflexo, subtus subplanato, carina acuta antice obsoletiore; apert. transverse ovato-lunata depressa; perist. recto incrassato obtuso, axin versus strictiusculo calloso-dilatato planato, labris remotis parallelis.

Diam. maj. $9\frac{1}{2}$ – $15\frac{1}{2}$, min. $8\frac{1}{2}$ –14, alt. $5\frac{1}{2}$ –10, axis 4–6 mill. Anfr. 5– $5\frac{1}{2}$.

Hab. omnino fossilis in arena (vetustiore?) calcarea Portûs S^u, ubi A.D. 1828 ipse perparce legi.—Vulg. T. V. Wollaston, 1849.

Obs. Variat forma magis globosa v. helicoidea, carina obsoletiore, spira exsertiore; in *H. chrysomelam* transiens. Characteres vero

superstites (testis omnino fossilibus decoloratis etiam decorticatis), necnon magnitudo, sicut etiam analogia *H. Pacinianæ* Phil. quoad *H. muralem* Müll., pro distincta specie habendam suadent.

§ 4. CRYPTAXIS.

(Typ. *H. undata*, Lowe.)

T. imperf. v. obtecte perf. (jun. perf.) depresso-globosæ, statu saltem jun. subcarinatæ l. angulatæ, subtenuiusculæ glabræ ruguloso-malleatæ v. undulato-corrugatæ granulatæ fasciatæ v. subconcolores. Anfr. 5, ult. depresso vix subangulato antice deflexo. Apert. lunato-ovalis. Perist. simplex obtusum vix sublabiatum, labris remotis disjunctis, basali strictiusculo axin versus oblique adscendente et (sicut in Katostomatibus) incrassato dilatato-planato ecolorato. Axis latens obsoletus lamina planata obductus.

18. *H. UNDATA*, Prim. p. 41. t. 5. f. 5; Fér. i. 165. t. 46 A. f. 1; Küst. M. et C. p. 154. no. 593. t. 93. f. 3, 4; Pf. i. 191.

H. corrugata, Sol. MSS. nec aliorum. *H. scabra*, Wood, Suppl. t. 8. f. 62, nec alior. *H. Groviana*, Fér. sec. Pf.

Hab. in Madera solum! vulgatiss.: nec alibi.

Species characteribus sat constans. Variat tamen valde magnitudine, necnon spira plus minus depressa. Testæ jun. v. pulli tenues fragillimæ umbilicatæ tenuiter fere striatæ, fascia carinali obscura mox evanida.

19. *H. VULCANIA*, Syn. Diagn. p. 4. no. 7. *T. imperf. subturbinato-depressa transverse subdiscoidea vix angulato-subcarinata solidiuscula olivaceo-fulva virescens fusco supra bifasciata oblique crebristriata, striis æquis distinctis subundulatis; spira depressiuscula, apice obtusissimo lævigato sæpe carioso, sutura distincta; anfr. 5½ planiusculis, ult. depressiusculo obtusissime subangulato, subtus planiusculo, antice longe declivi; apert. transverse lunato-ovali; perist. patulo subreflexo incrassato labiato, intus costa annulari marginato purpurascens, axin versus dilatato, labris conniventibus subapproximatis lamina tenui junctis.*

Diam. maj. 21–28, min. 17–23, alt. 13–17, axis 9½–12. mill. Anfr. 5½.

Hab. in Deserta majore et minore, rarior.

20. *H. LEONINA*, Syn. Diagn. p. 4. no. 8. *T. imperf. depresso-globosa orbiculata subinflata ecarinata tenuis fulvo-flavescens fusco supra bifasciata obsolete undulato-striata; spira convexiuscula apice obtuso lævigato, sutura distincta subimpressa; anfr. 6 convexiusculis, ult. inflato subtus convexo antice longe declivi; apert. lunato-rotundata; perist. recto simplici acuto purpurascens deorsum subpatulo vix reflexiusculo obtuso, axin versus dilatato, labris subremotis lamina tenui junctis.*

Diam. maj. 25-29, min. 22-25, alt. 20-22, axis 13-14 mill.
Anfr. 6.

Hab. in Deserta Australi, rarior.

Var. forsán præcedentis dies docebit.

§ 5. CAMPYLÆA, (Beck) Alb. p. 81.

(Typ. *H. hispana*, L.)

T. late umbilicata orbiculato-depressa subplanospira fusco sæpissime vittata, jun. sæpe velutina. Anfr. 5-6, ult. magno depresso antice valde deflexo. Apert. perobliqua rotundata, labris approximatis callo junctis interdum continuis. Perist. labiato-reflexum umbilicum raro subobtegens.

21. H. LOWEI, Fér. (Bullet. de Zoolog. 1835, p. 89). *T. aperte umbilicata orbiculata e turbinato-globosa fere discoidea solidiuscula lineis duabus fulvis bicingulata oblique crebristriata lævigata, jun. (hispid-)granulata; spira plus minus elevata aliquando subplanato-depressa, apice lævi punctulato obtusissimo, sutura distincta; anfr. 5½ convexiusculis, ult. aliquando supra planato obtuse angulato-carinato antice declivi; umbil. mediocri pervio (spiral) aperto; apert. lunato-rotundata subcirculari; perist. reflexo-labiato expanso axin versus incrassato, labris subapproximatis callo junctis.*

Diam. maj. 45-50, min. 39-45, alt. 29-40 mill. Anfr. 5-5½.

Varr. adsunt duæ: α, subglobosa lævigata spira altiore (*H. Lowei*, Fér. l. c.; Küst. M. et C. t. 156. f. 1, 2; *H. Porto-sanctana* β, *gigantea*, Prim. 46. t. 5. f. 16; Pf. i. 368),—et β, subdiscoidea striata et granulato-punctata subcarinata, spira depressa, anfr. supra planatis.

Hab. semifoss. (α. aliquando fere quasi recens) in Portu S^{to}.

22. H. PORTO-SANCTANA, Sow.

Tres adsunt varr.: α, fulva, apert. purpurascens, umbil. subobecto (*H. Porto-sanctana* α, Prim. 46. t. 5. f. 15; Fér. i. p. 42. t. 67. f. 9, 10; Sow. in Zool. Journ. i. 57. t. 3. f. 5 sinistra; Küst. M. et C. p. 233. no. 696. t. 111. f. 17-19; Pf. i. 367):—β, albida, apert. pallide carnea, umbil. submajore magis aperto (Sow. l. c. f. 5 media cum animali, et 5 dextra):—γ, virescenti-albida efasciata.

Hab. in Portu S^{to} (α. vulgatissima, β. rarior, γ. rariss.).

§ 6. XEROPHILA, (Held) Alb. 74, pars.

Theba, Beck, pars.

(Typ. *H. caperata*, Mont.)

T. umbilicatæ orbiculatæ globoso-depressæ subdiscoideæ raro sub-turbinatæ, statu saltem jun. angulato-carinatæ calcareæ festivæ s.

late et distincte colorato-fasciata nitidiusculæ plerumque glabræ sape argute striatæ, apice lævi corneo. Anfr. 5-6 leniter crescentes, ult. antice non aut vix deflexo. Apert. rotundata, labris remotis. Perist. rectum acutum intus plerumque annulato-labiatum aliquando simplex.

23. *H. ARMILLATA*, Syn. Diagn. 4. no. 9; Küst. M. et C. t. 155. f. 60-63. *T. aperte umbilicata orbiculata subtus convexa subgloboso-depressa subcarinata cinerea v. pallide ochracea albo fuscoque tessellatim fasciata et maculata arcte nitideque capillaceo-striata, striis creberrimis æquis transversis; spira convexo-depressa, apice lævi fusco-cærulescente, sutura distincta impressa profunda; anfr. 5 convexis tumidiusculis, ult. obtuse sed distincte angulato-carinata, antice haud deflexo; umbil. majusculo pervio aperto, pariete subabrupte declivi; apert. lunato-rotundata; perist. omnino simplici acuto, labris remotis.*

Diam. maj. 5-6, min. $4\frac{1}{2}$ - $5\frac{1}{2}$, alt. $3\frac{1}{2}$ -4 mill. Anfr. $4\frac{1}{2}$ -5.

H. striata, Drap.? Prim. 53. no. 44 (non Drap.).

H. Loweii, Pot. et Mich. Gal. des Moll. (1838) p. 91. no. 65; Pf. i. 149 (non Fér.).

Hab. in Madera prope urbem Funchal: haud infrequens.

§ 7. LEMNISCIA.

Xerophilæ sp. Albers 74.

(Typ. *H. Michaudi*, Desh.)

T. rimato-perf. v. imperf. trochoidea v. globuloso-conoidea depressiuscula distincte angulata v. carinata late colorata festiva seriatim maculata v. fasciata nitida omnino glabra. Anfr. 6-7 planati, ult. non deflexo. Apert. transverse lunato-ovalis subangulata subdepressa. Perist. rectum acutum simpliciusculum axin versus subincrassato-reflexum.

Obs. Testæ parvulæ concinnæ.

24. *H. MICHAUDI*, Desh. (1830) Encycl. Méth. ii. p. 263. no. 144; Pot. et Mich. Gal. des Moll. p. 95. no. 74; Küst. M. et C. p. 257. no. 238. f. 27-29; Pf. i. 157. *H. bicolor*, Prim. (Nov. 15, 1830) p. 58. t. 6. f. 22.

Hab. inter Lichenes in cacuminibus summis Portûs S^u (Pico de Facho, P. Branco, &c.) rarior.

Obs. *H. Michaudi*, Desh. in Enc. Méth. l. c. diametro "7 millim.," procul dubio eadem ac nostra *H. bicolor*. Lineas ideoque pro millimetris postea a cl. Deshayes (forsân a fig. nostra in Primitiis t. 6. f. 22 *aucta* desumptas) lapsu v. errore scriptas fuisse (ut a cl. Pfeiffero l. c. citatas video) vix dubitandum. Vide Prim. et Novit. (1851) App. p. ix. An revera e "*Teneriffa*" provenit, quod valde dubito, ulterius inquirendum.

§ 8. EUPARYPHA, Hartm.

Xerophilæ sp. Alb. 74.*Theba*, Beck, sp.(Typ. *H. pisana*, Müll.)

T. angustissime v. *rimato-perf. globosa* v. *conoideo-globosa*, statu saltem jun. *angulato-carinata*, *cretaceo-candida festiva* s. *laete et distincte colorato-fasciata nitidiuscula omnino glabra, apice laevi corneo*. Anfr. 5-6 *leniter crescentes*, ult. *antice non aut vix deflexo*. Apert. *rotundata, labris remotis*. Perist. *rectum acutum simpliciusculum*.

25. *H. PISANA*, Müll. Verm. ii. p. 60; Prim. pp. 52, 53; Küst. M. et C. t. 22. f. 5, 6 (f. 1-4 in *Insulis Maderensibus* haud obviæ); Ib. t. 37. f. 1-4; Pf. i. 152, 153. *H. rhodostoma*, Drap. 86. t. 5. f. 13-15. *H. cingenda*, Mont.

Hab. in *Maderæ et Portûs S^u arena calcarea* (nec alibi) *vulgatiss.*

Obs. Subvar. *rarior notabilis fusco-cornea fasciis coffæaceis confluentibus adest*. Var. *albida decolorata* (nec *subfossilis*) est *H. calcarea*, Pf. in *Proceed. Zool. Soc.* 1848, p. 110; Küst. M. et C. p. 275. no. 757. t. 123. f. 3, 4. (Ex *autopsia exempli* in Mus. Cuming!)

26. *H. USTULATA*, Syn. Diagn. 4. no. 10. *T. subimperf. conoideo-globosa omnino ecarinata cretaceo-alba saepe rosea fasciisque capillaribus fuscis lineata, subtilissime decussato-striata, striis spiraliibus exilissimis confertis; spira elevato-conoidea subpyramidata, apice obtuso laevi plerumque roseo, sutura distincta subimpressa; anfr. 5 convexis, ult. subtus convexo subinflato-prominente antice vix descendente; perforatione clausa obvelata; apert. verticaliter lunato-rotundata plerumque rosea; perist. interrupto acuto simplicissimo (nec intus costato-labiato) ad columellam reflexo, perforationem fere penitus obtegente*.

Diam. maj. 13-18, min. 11-16, alt. 10-17 mill. Anfr. 4-5.

Hab. in *Insulis "Salvages."*

§ 9. POMATIA, Leach, Beck, Alb. 102.

(Typ. *H. pomatia*, L.)

T. imperf. vel obtecte perf. subinflato-globosa v. *oblique ovato-globosa, ventricosa, omnino ecarinata glabra, obsolete v. diffuse fasciata v. nebulata*. Anfr. 4-5 *rapide crescentes*, ult. *magno ventroso antice descendente*. Apert. *ampla ovato-rotundata*. Perist. *subpectulum subincrassatum v. obtusum ad axin dilatato-reflexum*.

Obs. *Testæ majusculæ*.

27. *H. SUBPLICATA*, Sow. in *Zool. Journ.* i. 56. t. 3. f. 1 (subfossilis decorticata); Prim. 41. t. 5. f. 4; Fér. i. 272. t. 9 B. f. 8, 9,

et t. 17 A. f. 14, 15; Küst. M. et C. p. 227. no. 198. t. 29. f. 1, 2; Pf. i. 24.

Hab. recens in insula Baxo solum, subfossilis vulg. in Portu S^{to}.

Obs. Testæ seniores forma obliquiore evadunt.

§ 10. HELICOMELA.

(Typ. *H. punctulata*, Sow.)

T. rimato-subperf. pomiformi-globosa omnino ecarinata distincte fasciata scabra s. hispido-granulata. Anfr. 5-6 subleniter crescentes, ult. magno antice descendente. Apert. lunato-rotundata. Perist. simplex rectum acutum v. obtusiusculum ad axin callosoreflexum.

28. *H. BOWDICHIANA*, Fér. Coll.

H. punctulata γ, Pf. i. 194; "A fossil Helix from Caniçal," Bowd. Exc. in Mad. f. 32. *H. punctulata*, (Sow.) Fér. i. 225. t. 28 B. f. 5, 6. *H. Vargasiana*, Pf. in Proceed. Zool. Soc. 1848, p. 109; Küst. M. et C. p. 274. no. 756. t. 123. f. 5, 6 (status varietasve nana minor).

Hab. semifoss. in Madera ad Caniçal et in Portu S^{to} copiosissima: recens nondum lecta.

Peraffinis *H. punctulatæ*, cujus forsitan mera var. v. status. Differt testa omnino decolorata efasciata cretacea alba, magnitudine, soliditate (crassitudine et ponderositate), sculptura rudiore, numero anfr. in testis etiam ejusdem ad amussim magnitudinis semper majore, labro deorsum atque ad axin magis incrassato et reflexo, forma compactione magis bulboso-pomiformi. Relatio fere eadem ad *H. punctulatam* ac illa *H. Loweii* ad *H. Porto-sanctanam*. Magnitudine vero admodum variabilis.

29. *H. PUNCTULATA*, Sow. in Zool. Journ. i. p. 56; Prim. p. 52.

Var. α. setulosa; Sow. l. c. t. 3. f. 2; Prim. l. c. t. 6. f. 7. *H. punctulata*, (Sow.) Fér. i. 225. t. 28 B. f. 3; Küst. M. et C. p. 155. no. 594. t. 93. f. 14-16; Pf. i. 194.

Var. β. avellana; minor, magis conoideo-globosa, hispidior, spira altiore exserta.

Var. γ. solida. H. punctulata β, Prim. l. c. t. 6. f. 8; Pf. i. 194. *H. punctulata*, (Sow.) Fér. l. c. f. 4.

Hab. in Portu S^{to}; β quoque in Deserta Australi.

Obs. Sp. forma magis minusve globosa, spira magis minusve exserta, necnon magnitudine et soliditate v. tenuitate, in varr. subvarietatibusque omnibus perquam variabilis.

§ 11. PLEBECULA.

(Typ. *H. vulgata*, Lowe.)

T. umbilicata depresso-turbinata ecarinata fasciata hispido-granulata nitidiuscula. Anfr. 5-6 subleniter crescentes, ult. antice parum

descendente. Apert. rotundata, labris subapproximatis. Perist. simplex acutum ad axin expansum.

30. *H. VULGATA*, Syn. Diagn. 5. no. 12. *T. umbil. depressiusculo-globosa subconoidea solidiuscula sparsim obsolete granulata, granulis quasi derasis sæpe cariosis, plus minus hispido-setulosa lutosæ, sæpe depilata calva, nitidiuscula pallide subvirescenti-cornea, fusco trifasciata; spira exsertiuscula plus minus depressa, apice acutiuscula, sutura distincta impressiuscula; anfr. 5½-6 convexis, ult. antice vix descendente subventricoso subtus convexo; umbil. mediocri vix subspiraliter partim obvelato; apert. lunato-rotundata labris disjunctis; perist. simplici acuto intus ad axin incrassato reflexo umbilicem paulum obvelato-coarctante.*

Var. α. trifasciata; minor pallida fasciis tribus æquis angustis distinctis æquidistantibus, umbil. subangustato.

Diam. maj. 11-13, min. 9-11, alt. 8-10 mill. Anfr. 5½-6.

H. nitidiuscula, Prim. p. 52. t. 6. f. 6; Fér. i. 200. t. 28 B. f. 1; Küst. M. et C. p. 161. no. 604. t. 94. f. 5, 6; Pf. i. 196 (nec Sowerby).

Hab. in Madera ubique vulgatiss. In Desertis, ubi in var. γ . transit, minus frequens.

Obs. *H. nitidiuscula*, Sow. in Zool. Journ. i. p. 57. t. 3. f. 4, e Portu S^{to}, mox a cl. auctore deinde a meipso aliisque cum testa Maderensi ubique obvia (*H. vulgata* α) confusa, ex icone et descriptione originali, necnon patria (Portu S^{to}), ad *H. luridam* nostram procul dubio pertinet; cui forma (ex icone) magis depressa subdiscoidea, umbilico minore, etc., potius spectat. *H. nitidiuscula*, Sow. nempe, archetypa, revera in Portu S^{to} reperta est; quo *H. lurida*, Lowe, nec alioqui, occurrit. *H. vulgata* contra in Portu S^{to} omnino deest.

Var. β. canicalensis; testa solidiore crassiore rudiore, spira plerumque prominentiore apice acutiore, anfr. convexioribus distinctioribus, sutura profundiore.

Diam. maj. 11-14, min. 10-11, alt. 10-11 mill. Anfr. 6.

H. canicalensis, Syn. Diagn. p. 5. no. 13.

Hab. semifoss. in arena calcarea Canicalensi Maderæ.

Obs. Variat spira plus minus elevata, plerumque subturrita, sæpe vero æque ac in α , depressa. Testæ plerumque decoloratæ omnino cretacæ albæ; interdum fasciis vix evanescentibus.

Var. γ. giramica; major largior magis depresso-rotundata v. minus compacto-globosa intensius colorata sæpissime (supra saltem) castanea, fasciis fuscis inæqualibus, duabus superioribus sæpissime confluentibus, tertia inferiore sæpe latiore, umbil. majore apertiore subpatulo.

Diam. maj. 14-16, min. 12-14, alt. 10-12 mill. Anfr. 6.

H. giramica, Syn. Diagn. pp. 5, 6. no. 11.

H. nitidiuscula β , Major, Pf. i. 197; Küst. M. et C. p. 162. t. 94. f. 7, 8.

Hab. hinc inde in Madera fere seorsim, et in Ins. Deserta Minore cum α . commixta.

Obs. Transitus inter α . et γ . in Deserta Minore plures observantur.

31. *H. LURIDA*, Prim. 52. t. 6. f. 5; Küst. M. et C. t. 155. f. 31-33; Pf. i. 197. *H. nitidiuscula*, Sow. in Zool. Journ. i. 57. t. 3. f. 4, nec alior.

Hab. in Portu S^{to} rariss.

Obs. Characteribus simul ac patria cum *H. nitidiuscula*, Sow., sicut a cl. auctore prius definita, necnon icone, omnino convenit. Nomen vero magna sine confusione haud restituendum. Apertura Ianthini-formi, labro sc. umbilicum versus recto verticali, ab *H. vulgata* imprimis distincta.

§ 12. IRUS.

(Typ. *H. depauperata*, Lowe.)

T. umbilicata turbinato-depressa subdiscoidea obsolete subcarinata solidiuscula strigosa v. granulata rudiuscula. Anfr. 5 leniter crescentes, ult. subtus convexo-rotundato antice deflexo. Apert. rotundata circinata, labris approximatis conjunctis. Perist. simplex subexpansum subincrassatum continuum subsolutum.

32. *H. LACINIOSA*, Syn. Diagn. 5. no. 14. *T. stricto-umbilicata subturbinato-depressa v. depresso-globulosa solidiuscula tota membranaceo-lacinulata lutosa grisea fusco bifasciata arcte grosse plicato-striata, striis crebris inæqualibus quibusdam majoribus plicato-costatis, lacinulis membranaceis subtus præsertim lunatis crebro-quincuncialibus echinato-aculeatis aspera; spira convexo-depressa sape exsertiuscula plus minus elevata, apice calvo levigato obtuso, sutura valde distincta; anfr. 5-5½ convexis prominentibus quasi carinato-angulatis, ultimo superne subangulato antice largiore abrupte deflexo; umbil. parvo stricto angusto parum profundo vix spirali aperto s. nudo; apert. subinæqualiter rotundata circinata labris fere relevatis conjunctis; perist. expanso subreflexo fusco-carneo intus costa annulari munito.*

Diam. maj. 6-9, min. 5-7, alt. 4-6 mill. Anfr. 5-5½.

H. laciniosa, (Lowe) Küst. M. et C. t. 154. f. 23, 24 (male, exempl. defloccatis).

Hab. in Ins. Deserta Septentr. Minore.

Obs. Costis plicisve inæqualibus, quibusdam pallidis albis, spiram maculatam s. marmoratam reddentibus, aspectu quodammodo *H. arctæ*. Tota omnino egranulata.

33. *H. DEPAUPERATA*, Prim. 51. t. 6. f. 4; Küst. M. et C. p. 261. no. 244. t. 38. f. 16, 17; Pf. i. 166.

Hab. in Portu S^{to} recens fossilisque vulg.

34. *H. SQUALIDA*, Syn. Diagn. 5. no. 15. *T. aperte umbilicata convexo-depressa orbiculata subdiscoidea solidiuscula arcte et supra grossiuscule striata erosulo-scröbiculata tota subtilissime et confertissime reticulato-granulata calva fusco-cornea efasciata, supra sape lutosa terraque obducta; spira convexo-depressa obtusissima, apice depressiuscula, sutura distincta subimpressa; anfr. 5 distinctis planiusculis leniter et æque crescentibus, ult. penultimo vix*

latiore antice abrupte deflexo; umbil. sat magno spirali profundo aperto s. nudo; apert. lunato-rotundata subcircinata, labris lamina subcallosa junctis; perist. subexpanso reflexiusculo simpliciusculo tenui acuto pallidiusculo, intus costa annulari munito.

Recens. Diam. maj. 6-7, min. $5\frac{1}{2}$ -6, alt. 4- $4\frac{1}{2}$. Anfr. 5.

Hab. in Madera; recens rariss.: fossilis sat vulg.

Differt ab *H. depauperata* testa minore intensius colorata fusca rudiore v. distinctius scrobiculata, anfr. lentius v. æquius crescentibus ult. angustiore, apice spiræ obtusissimo etiam depresso, umbil. majore largiore, anfr. subpaucioribus. Sculptura sub lente, nisi subtilior, eadem: sc. vel subtilissime granulata.

§ 13. SPIROBULA.

Ochthephila (Beck) sp. Alb. 88.

(Typ. *H. obtecta*, Lowe.)

T. aperte umbilicata depresso-discoidea planorbiformis obtuse carinata v. angulata scrobiculato-rudiuscula quasi erosa v. cariosa glabra plerumque decolorato-cretacea v. obscure fasciata terra limove obducta. Anfr. 4-5 leniter crescentes subsoluti planati, ult. subtus convexo, antice abrupte deflexo, ad aperturam aliquando constricto. Apert. rotundata circinata. Perist. solutum continuum simplex acutum intus aliquando quasi duplicatum et ad dextram unidentatum.

35. *H. LATENS*, Syn. Diagn. 5. no. 16. *T. umbilicata supra planata infra inflato-convexa subcornuicpæformis tenuissima membranacea flexilis inæqualiter et rudiuscule striata eroso-scrobiculata totaque subtilissime et confertissime quasi pulverulento-granulata, calva cornea efasciata terra limove obducta; spira planata apice depressa fere immersa, sutura distincta impressa; anfr. paucis 3- $3\frac{1}{2}$ distinctis planatis rapide crescentibus, ult. magno superne angulato subcarinato, inferne valde convexo, antice inflato-dilatato parum deflexo; umbil. subparvo angustato cylindrico vix spirali profundo aperto s. nudo; apert. lunato-ovali altiore quam lata, labris conniventibus approximatis; perist. simplici tenui acuto.*

Diam. maj. 5-6, min. $4\frac{1}{4}$ -5, alt. 3- $3\frac{1}{2}$ mill. Anfr. 3- $3\frac{1}{2}$.

Hab. in Madera, rariss.

36. *H. OBTECTA*, Prim. pp. 47, 48. t. 5. f. 20 *a, b*; Küst. M. et C. p. 143. no. 577. t. 91. f. 19-21; Pf. i. 188. (Var. β . quiddam diversum suspicor.)

Hab. in Portu S^{to}.

37. *H. PAUPERCULA*, Prim. p. 47. t. 5. f. 19; Fér. Hist. i. p. 8. t. 69 D. f. 6; Küst. M. et C. p. 144. no. 579. t. 92. f. 3-8; Pf. i. 189.

Hab. in Madera, Portu S^{to}, Insulisque Desertis.

§ 14. ZURAMA, Leach.

Glaphyra, Alb. 87. *Vallonia*, Risso.(Typ. *H. pulchella*, Müll.)

T. aperte umbilicata pusilla orbiculata depressa discoidea omnino ecarinata lactea subopaca efasciata solidiuscula glabra. Anfr. 3-4 cito crescentes, ult. subtus convexo, antice haud deflexo. Apert. rotundata circinata. Perist. late reflexum subcontinuum labrisve approximatis callo junctis.

Obs. Campylæis valde affines.

38. *H. PULCHELLA*, Müll. Pf. i. 365; Gray, Man. p. 141 (excl. var. 1); Prim. p. 45. no. 21; Küst. M. et C. p. 326. no. 829. t. 129. f. 48-52.

H. pulchella β, Drap. 112. t. 7. f. 33, 34; Rossm. vii. pp. 5, 6. f. 440.

In Madera sub lapidibus post pluvias hieme vulg. In Portu S^{to} et Desertis nondum detecta.

Obs. *H. costata* Müll. nullibi exstat.

§ 15. EUROMPHALA, Beck.

Patula, (Held) Alb. 64.(Typ. *H. rotundata*, Müll.)

T. late et perspective concavo-umbilicata axi plane nullo, orbiculata convexo-discoidea arctispira sericina nec lucido-nitida, supra costato-striata, tenuis glabra cornea sæpe rufo-tessellata. Anfr. 4-6 lente crescentes, ult. subtus convexo, sæpe angulato-carinato, antice haud deflexo. Apert. lunata labris disjunctis. Perist. simplex rectum tenue acutum.

39. *H. PUSILLA*, Prim. p. 46. t. 5. f. 17; Küst. M. et C. p. 135. no. 565. t. 89. f. 28-31; Pf. i. 101.

Hab. in Madera et in Ins. Des. Majore.

Dux adsunt varr.: α. *annulata*; subdiscoidea spira depressa, distincte v. remotiuscule plicato-costellata fusco-rufescens; et β. *sericina*; subturbinata, spira subpyramidato-exserta lævigata sericeo-nitidiuscula creberrime striata costellis obsoletis v. nullis pallidiuscula fusco-virescens; inter muscos ad truncos Laurorum in sylvis.

40. *H. GUERINIANA*, Syn. Diagn. 5. no. 17. *T. latissime et perspective concavo-umbilicata subtus excavata rotundato-discoidea convexo-planata lenticularis arctispira distincte angulato-carinata tenuis nitida pallide luteo-cornea, supra grossiuscule crebricostata rufoque pulchre tessellatim radiato-maculata sæpe erosulo-cariosa decorticata, subtus pellucida lævigata s. obsolete substriata lucida nitens rufo pallide annulata; spira convexo-planata subtabellata apice obtusissima lævigata, sutura distincta impressa; anfr. 7*

planatis lente crescentibus, ult. antice recto haud deflexo supra planato subtus infra carinam æqualiter convexo-rotundato; umbil. latissimo infundibuliformi pervio patulo profundo; apert. oblique lunato-ovali; perist. simplici recto tenui acuto.

Diam. maj. 6–6½, min. 5½–6, alt. 2–2½ mill. Anfr. 7.

Hab. in declivibus graminosis inter sylvas Convallis Frigidi Maderæ, rariss. Prima invenit Jemima Carolina Guerin.

Obs. Inter *H. rotundatam* Müll. et *H. solariam* (Menke) Rossm. f. 453 media, huic proxima. Differt carina minus acuta nec expressa, anfr. ult. haud infra carinam excavato s. contracto, spira subconvexiore grosse costata nec “subtilissime costulato-striata,” apertura oblique ovali nec “securiformi” s. ad carinam angulata, sutura forsan profundiore, numeroque anfractuum majore. Ab *H. rotundata* Müll. abundantius differt.

§ 16. LUCILLA.

Hyalina, Fér. Alb. 66.

(Typ. *H. cellaria*, Müll.)

T. umbilicata orbiculata convexo-depressa subdiscoidea nitida lævis pellucido-cornea efasciata subtus plerumque opaco-lactea. Anfr. 4–6 subrapide crescentes, ult. subdepresso subtus subplanato antice non deflexo. Apert. obliqua lunata, labris disjunctis. Perist. simplex rectum tenue acutum.

41. *H. CELLARIA*, Müll.; Prim. 47. no. 25; Küst. M. et C. p. 102. no. 517. t. 84. f. 8–10; Pf. i. 111, 112. *H. nitida*, Drap. 117. t. 8. f. 23–25. *H. lucida*, Mont. *Zonites cellarius*, Gray, Man. 170. t. 4. f. 40.

Hab. in Madera, vulg.

42. *H. SCINTILLA*, Syn. Diagn. 6. no. 18. *T. minuta late et perspective umbilicata orbiculata discoidea depresso-planata vix convexiuscula sublenticularis ecarinata tenuis nitida lævigata utrinque hyalino-pellucida pallide virescens; spira vix convexiuscula plano-depressa, apice (animali facta) flavescens, sutura distincta impressa; anfr. 4 planatis lente et æque crescentibus; umbil. largo patulo profundo æqualiter spirali, usque ad apicem pervio; apert. tunata, labris disjunctis remotis; perist. simplici recto tenui acuto.*

Diam. 2 mill. v. vix 1 linea; alt. ½ mill. Anfr. 4.

Hab. sub lapidibus ad Levadam S^{te} Lucie prope urbem Funchal. Maderæ, rariss.

Obs. Cum *H. pulchella*, Mull., *H. radiatula*, Ald., et *H. crystallina*, Mull., quoad magnitudinem solum conferenda.

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§ 17. CRYSTALLUS.

Hyalina, Fér. sp. Alb. 66. *Discus*, Fitz. sp.

(Typ. *H. crystallina*, Müll.)

T. perf. v. imperf. umbilico minimo v. nullo orbiculata convexo-depressa subdiscoidea arctispira nitida omnino laevis hyalina praetenuis fragillima parvula. Anfr. 4-6 leniter v. aequae crescentes, ult. antice non deflexo. Apert. lunata labris disjunctis. Perist. simplex rectum tenue acutum.

43. *H. CRYSTALLINA*, Müll. ; Prim. 47. no. 26 ; Drap. 118. t. 8. f. 13-18 ; Küst. M. et C. p. 128. no. 555. t. 88. f. 27-30 ; Pf. i. 59, 60. *Zonites crystallinus*, Gray, Man. 176. t. 4. f. 42.

Hab. in Madera, hieme vulg.

§ 18. JANULUS.

(Typ. *H. bifrons*, Lowe.)

T. arcte v. cylindrico-umbilicata orbiculata convexo-depressa subdiscoidea arcti-multi-spira lucida bifrons s. supra costulato-striata, infra laevis, subopaco-cornea efasciata. Anfr. 7-9 leniter et aequae crescentes, ult. antice non deflexo. Apert. lunata labris disjunctis. Perist. rectum tenue acutum, intus late albo incrassatum v. calloso-labiato, labio vel simplici v. lamellato-plicato.

44. *H. BIFRONS*, Prim. 46. t. 5. f. 18 ; Küst. M. et C. p. 234. no. 698. t. 111. f. 23-25 ; Pf. i. 144, 145.

Hab. in Madera, recens fossilisque vulg.

45. *H. CALATHUS*, Syn. Diagn. 6. no. 19. *T. umbilicata compacto-orbiculato-convexa subdiscoidea distincte angulato-carinata tenuis sericino-nitidiuscula rufo-cornea, infra laevis, supra eleganter costellata, costellis concinnis arctis crebris aequis expressis distinctis, tota exilissime creberrimeque spiraliter striolata ; spira rufo-tessellata v. maculata subconvexa, sutura distincta impressa ; anfr. 8-9 lentissime et aequae crescentibus angustis planiusculis arcte et concinniter expressis, ult. distincte angulato v. carinato, infra carinam parum convexo subplanato laevigato, intus varicibus 3 annotinis remotis 3-4-plicatis subseptato ; umbil. mediocri subspiraliter profundo ; apert. lunata, labris valde remotis ; perist. tenui acuto, longe intus callo opaco-lacteo 3-4-plicato labiato.*

Diam. maj. 9-10, min. 8-9½, alt. 5-6 mill. Anfr. 8-9.

Hab. in Madera, recens fossilisque rariss.

§ 19. HISPIDELLA.

Fruticicola, (Held) sp. Alb. 71.

(Typ. *H. hispida*, L.)

T. umbilicata v. perf. orbiculata convexo-depressa subcarinata plerumque hispida tenuis persaepe fragilis fusca v. rufo-cornea, saepe

pallido obscure unifasciata. Anfr. 5-6 lente crescentes, ult. antice non aut vix subdeflexo. Apert. late lunata. Perist. acutum brevissime expansum, intus plerumque albo-labiato.

Obs. Testæ subparvulæ hispidæ fuscae.

46. *H. DEFLORATA. T. latiuscule umbilicata orbiculato-depressa discoidea supra fere planata obtuse subcarinata nitidiuscula pallide cornea subcarnea efasciata, subtus circa umbilicum pallescens, utrinque obsolete subgranulato-striolata rugosiuscula, striis confertis subundulatim connexivis interruptis inaequalibus; spira planato-depressa vix convexiuscula, apice tabellata, sutura distincta impressa; anfr. 6 planatis subprominenti-expressis, ultimis vix lente crescentibus, 3-4 primoribus tabellatis, ultimo superne obtuse angulato depresso, infra angulum parum convexo, antice deflexo; umbil. largo spirali profundo subpatulo s. parietibus lente declivibus depressis; apert. lunato-ovali, labris convergentibus subapproximatis; perist. tenui acuto intus albo-labiato.*

Diam. maj. 11, min. 10, alt. $5\frac{1}{2}$, axis 4 mill. Anfr. $5\frac{3}{4}$.

Hab. in Madera, rariss. Exemplar junius spira confracta indeterminabile in Rib. de S^a Luzia Maderæ, A.D. 1848 primus invenit cl. T. V. Wollaston. Alterum adultum integrum, animalis expers, sed parum decoloratum, prope locum Arrebentão dictum, ad alt. circiter 3000 ped. supra urb. Funchal. a Rousset detectum, communicavit T. S. Leacock 1853.

Obs. Testa efasciata calva verosimiliter statu perfectiore v. jun. hispida; *H. rufescenti* Penn. proxima! Differt, (1) spira tabellata; (2) carina obtusiore minus distincta; (3) anfr. ult. antice deflexo; (4) labris convergentibus subapproximatis (nec parallelis remotis); (5) striatura peculiari obsolete sc. striis magis obsolete interruptis hinc inde sparsim subgranulatis v. subundulatis (nec strictis continuis rectis distinctis); (6) anfr. ult. infra carinam minus convexo (nec circa umbil. alto declivi); (7) umbilici parietibus lente declivibus depressis.

47. *H. ARMITAGEANA, Syn. Diagn. 6. no. 20; Küst. M. et C. t. 155. f. 57-59. T. perf. convexo-depressa orbiculata angulato-subcarinata tenuissima fragillima furfuraceo-pubescent pel-lucide fusca virescens fusco bifasciata, striolis spiralibus subtilissimis flexuoso-capillaribus confertis ad interstitia strias furfuraceo-membranaceas transversas decussantibus; spira convexo-depressa, sutura distincta impressa; anfr. $4\frac{1}{2}$ -5 convexiusculis, ult. distincte subcarinato, antice non aut vix deflexo; perf. cylindrica parva; apert. lunata subdepressa, labris remotis; perist. expansiusculo acuto, juxta perf. reflexo, intra marginem sublabiato.*

Diam. maj. 7, min. $6\frac{1}{2}$, alt. $4\frac{1}{2}$, axis $3\frac{1}{2}$ mill. Anfr. $4\frac{1}{2}$ -5.

Hab. in montibus excelsioribus Maderæ.

§ 20. ACTINELLA.

(Typ. *H. lentiginosa*, Lowe.)

T. aperte v. subobtecte umbilicata orbiculata depresso-discoidea acute carinata, plerumque tenuis pusilla fragilis, fusco-cornea saepe lentiginoso-maculata et fasciata, arcte tenuiter striolata v. lamellato-costellata, furfuraceo-scobinata v. membranaceo-squamulosa, carina lacinulato-calcarata. Anfr. 4-5 fere planati sublente crescentes, ult. depresso distincte carinato, antice deflexo. Umbilicus parvus fere apertus. Apert. depressa valde obliqua rotundato-ovalis v. circularis sublunata. Perist. subpatulum reflexum plerumque continuum circinatum, basale aliquando strictiusculum.

48. *H. ACTINOPHORA*, Prim. 45. t. 5. f. 14; Pf. i. 146, 147.

Hab. in Madera recens fossilisque. In Insula Deserta Austr. recens semel occurrit.

49. *H. ARRIDENS*, Prim. 43. t. 5. f. 9; Küst. M. et C. p. 324. no. 827. t. 129. f. 40-42; Pf. i. 217.

Hab. in Madera.

50. *H. LENTIGINOSA*, Prim. 49. t. 5. f. 25; Küst. M. et C. t. 154. f. 32-35 (male); Pf. i. 145.

Hab. in Madera.

51. *H. STELLARIS*, Syn. Diagn. 9. no. 39; Küst. M. et C. t. 155.

f. 48-52. *T. parvula umbilicata subcarinata orbiculata depressa subdiscoidea solidiuscula opaca vix substriata scobinata sublævigata subnitidiuscula intensius fusca v. subnigricans raro v. obscure albo marmorata terra limove arcte obducta; spira depressa vix convexiuscula, apice glabro distincto nitente, sutura distincta impressa; anfr. 4 distinctis vix convexiusculis, ult. depresso distincte subcarinato eximie et æqualiter membranaceo-calcarato, antice deflexo; umbil. majusculo patulo aperto subspirali; apert. valde obliqua ovali-rotundata, labris approximatis v. conjunctis; perist. rite circinato continuo v. paulisper interrupto undique incrassato-expanso deorsum reflexo, plica ventrali nulla.*

Diam. maj. 4, min. $3\frac{1}{2}$, alt. 2 mill. Anfr. 4.

Hab. in Madera.

Obs. Characteribus priori, magnitudine sequenti proxima.

52. *H. ARCTA*, Prim. 42. t. 5. f. 7; Küst. M. et C. p. 236. no. 701. t. 112. f. 5-8; Pf. i. 404.

α. major crassior rudior, plica ventrali valida prominula distincta, perist. late reflexo.

β. paullo minor subdepressior tenuior minus grosse costellata, plica ventrali obsoleta v. nulla, perist. minus reflexo, perforatione submajore.

Hab. in Madera.

§ 21. RIMULA.

Conulus, (Fitz.) sp. Alb. 72, 73. *Hylostoma*, sp. Alb. 95.

(Typ. *H. cobresiana*, Alt.)

T. obtecte v. rimato-perf. v. imperf. depresso-globulosa subconoidea carinata v. subcarinata multi- v. arcti-spira plerumque tenuis sæpe pubescens cornea obscure fasciata v. lentiginoso-maculata. Anfr. 5-7 lente crescentes, ult. distincte angulato-carinato subtus subturgido-convexo ampliato, antice subito deflexo subcoarctato constricto. Perf. minima omnino fere clausa. Apert. lunata obliqua coarctata, labris remotis, callo plicare ventrali sæpe interposito. Perist. interruptum albo-incrassatum subreflexum, basi strictiusculum intusque sæpe sinuato-sub-bipli-cato-callosum.

53. *H. ARCINELLA. T. imperf. parvula convexo-depressa vix subglobulosa distincte carinata solidiuscula subcostulato-striata obsolete subscobinata; spira subconvexa, aliquando elevatiuscula subconoidea, sutura distincta impressa; anfr. 4½-5 convexiusculis, ult. antice deflexo ad apert. constricto-scrbiculato; perf. minima subnulla lamina peristomatis expansa subproducta appressa fere v. omnino clausa; apert. valde depressa transversa oblique lunata edentula, callo ventrali costæformi distincto labro parallelo adscendente nec intrante, labris remotis subparallelis aliquando callo junctis nunquam circinatis; perist. interrupto late præsertim basi reflexo, intus basi vix subsinuato-callosa edentulo.*

a. major, callo basali vix ullo.

Diam. maj. 4½-5, min. 4-4½, alt. 2½-3½ mill. Anfr. 4½-5.

H. fausta β, minor, Prim. (ed. 1851) App. p. xiv.

β. minima, callo basali subdistinctiore.

Diam. maj. 4-4¼, min. 3½-3¾, alt. 2½-3 mill. Anfr. 4½-5.

H. fausta γ, minima, Prim. l. c.

Hab. *a.* et β. fossilis ad Caniçal Maderæ.

Obs. Magnitudine *H. arctæ* proxima. Differt testa utrinque convexiore subglobulosa spira plerumque elevatiore, perf. lamina appressa (fere ut in *H. arridente*) producta fere v. omnino clausa, apert. depresso-lunata sæpe subquadrata (nec circulari), perist. interrupto labris semper remotis subparallelis (nec circinatis) basi sæpe strictiusculo (nec semper arcuato), callo ventrali costæformi adscendente v. subverticali (nec lunato-intrante v. nullo).

54. *H. CAPSELLA. T. subrimato-perf. v. imperf. distincte et acute carinata orbiculata convexo-depressa vix subconoideo-globulosa arctispira arcte tenuiter substriolata striolisque spiralibus vel subtilissimis alias decussantibus obsoletis, tenuis hispida fusco-rufescens supra fere immaculata subtus albo-lentiginosa et fusco obscure unifasciata; spira conoideo-depressa; sutura distincta impressa; anfr. 5 planiusculis, ult. abrupte deflexo ad aperturam*

constricto-scrobiculato; perf. minima callo columellari reflexo sæpius vix, adulta omnino clausa; apert. valde depressa transversa lunata callo costave ventrali oblique intrante rarissime distincto plerumque nullo, labris remotis disjunctis subparallelis, basali strictiusculo; perist. interrupto expanso basi calloso-reflexo intus subsinuato vel obsoletissime sub-bicalluso edentulo.

Diam. maj. $5\frac{1}{2}$ – $5\frac{3}{4}$, min. $5\frac{1}{4}$, alt. 4 mill. Anfr. 5.

H. fausta, Küst. M. et C. t. 156. f. 21–23.

Hab. in Madera.

Obs. 1. Species diu pro *H. fausta* degenerata supposita, rite distincta videtur. *H. faustæ* nempe et *H. arridenti* intermedia, huic propior; sed forma minus depressa (nec lenticulari) utrinque convexiore, perforatione omnino minore fere v. omnino clausa, apertura minus angustato-depressa intus ad axin minus (nec “quasi cum rictu”) producta, testa lætius colorata et maculata differt.

Obs. 2. Callus v. costa ventralis, nisi in exemplis peradultis, imo vetustioribus, omnino deest.

55. *H. FAUSTA*, Prim. 43. t. 5. f. 8; Pf. i. 422. *T. imperf. conoideo-globulosa* subtus subinflato-convexa obtusiuscule subcarinata arctispira arcte et tenuiter substriolata tenuiuscula hispida fusco-cornea spira immaculata, anfr. ult. supra albo subtessellatim maculato, infra carinam fusco unifasciato et albo maculato, perist. extus late albo marginato; spira depresso-conoidea elevatiuscula, sutura distincta impressa; anfr. $5\frac{1}{2}$ – $6\frac{1}{2}$ convexiusculis, ult. abrupte deflexo ad apert. constricto-scrobiculato; perf. nulla v. omnino obserata clausa; apert. valde depressa transversa anguste lunata, plica callove ventrali distincto diffuso coarctata, labris remotis subparallelis lamina junctis, basali strictiusculo; perist. interrupto expanso, basi calloso-reflexo, callo extrorsum distincte unidentato v. tuberculato sc. in dentem tuberculumve distinctum abrupte desinente.

T. recens (exempl. orig.):

Diam. maj. 6, min. $5\frac{1}{4}$, alt. 4 mill. Anfr. $5\frac{1}{2}$.

T. fossiles:

Diam. maj. $6\frac{1}{2}$ –7, min. $6\frac{3}{4}$, alt. $4\frac{3}{4}$ – $5\frac{3}{4}$ mill. Anfr. 6– $6\frac{1}{2}$.

Hab. in Madera recens fossilisque rariss.

Obs. Forma globuloso-conoidea, subtus valde convexa, necnon apert. unidentata cito dignoscitur. Recens semel occurrit. Descriptio ex exemplare originali adhuc unico recente in Primitiis olim picto et descripto denuo desumpta: comparatis exemplaribus XII fossilibus, omnino ad amussim illi congruentibus, præter “peristoma columellam versus” vix “subsINUATUM sc. obsolete bidentatum” (Prim. l. c.). In omnibus, nempe, rite v. rectius unidentatum dicitur: quamvis in uno fossili, sicut in exempl. originali unico recente, tuberculi v. plicæ secundi remotiusculi interioris (sc. axin versus) vel obsoletissimi vestigia quædam adsunt.

56. *H. OBSERATA*, Syn. Diagn. 9. no. 40. *T. imperf. distincte et acute carinata orbiculato-discoidea lenticularis, subtus præsertim*

convexior, utrinque arcte et æque striata, striis infra carinam subsinuatis sphinctro-radiantibus, striolis spiralibus vel subtilissimis alias decussantibus, tenuiuscula calva subnuda v. hinc inde minute membranaceo-scobinata lævigata nitidiuscula fusco-rufescens lentiginoso-maculata, supra carinam obscure, infra distincte fusco unifasciata, perist. extus late pallide ochraceo; spira convexo-depressa subplanata, sutura distincta; anfr. 5-5½ planatis, ult. antice breviter deflexo subscrobiculato-constrictiusculo; perf. omnino obserata; apert. valde depressa transversa angustato-lunata plica callove ventrali alba subcostæformi adscendente labro parallela subdistincta (raro nulla) coarctata, ad angulum inferiorem externum sub-biplicata, labris remotis lamina tenui junctis subparallelis, basali strictiusculo; perist. interrupto expanso, basali calloso-reflexo vix subsinuato, intus extrorsum leviter biplicato, plicis binatis approximatis, exteriore obliquissima fere horizontali intrante.

α. recens, plicis binis obsoletis subæqualibus. *H. clyserata*, Syn. Diagn. l. c.

Diam. maj. 6-7½, min. 5¾-7, alt. 3½-4¼ mill. Anfr. 5-5½.

Hab. in Maderæ convallibus, rariss.

β. fossilis, paullo minor, plica exteriore dentiformi distinctiore, ab interiore (callum basalem terminante) obsoletiore sinu distincto separata.

Diam. maj. 5½-6¼, min. 5-5¾, alt. 3½-4¼ mill. Anfr. 5-vix 5½.

Hab. in Madera ad Caniçal foss. rarior.

57. *H. CALVA*, Prim. 49, 50. t. 5. f. 26; Küst. M. et C. p. 324. no. 826. t. 129. f. 37-39; Pf. i. 289, 290.

Hab. in graminosis apricis excelsioribus montium Maderæ; etiam fossilis: sat vulg.

§ 22. CALLINA.

(Typ. *H. rotula*, Lowe.)

T. vix rimato-subperf. v. imperf. trochoidea v. lenticularis angulato-carinata solida nuda granulata fulva v. rufo-cornea fasciata. Anfr. 7-8 lente crescentes plani, ult. acute curinato subtus planato, antice deflexo subcoarctato. Apert. lunata, labris subconvergentibus remotis, callo laminave tenui junctis, plica costave interna ventrali alba in jun. distincta, in adultis obsoletiore v. nulla. Perist. interruptum omnino arcuatum intus late albo-incrassatum expansum basi reflexum costaque interna relevata (in jun. distinctiore sub-biplicata v. medio emarginata) sinuato-callosum.

58. *H. ROTULA*, Prim. 53. t. 6. f. 10; Küst. M. et C. t. 13. f. 11, 12; Pf. i. 216.

Hab. in Portu S^{to} vulgatiss.

Subvar. 1, fasciata major; 2, fasciata minor; 3, efasciata cerina, 4, fasciata monstrosa, anfr. subsolutis, carina supra suturam prominente.

Obs. Spira nunc pyramidato-elevata nunc depressa sicut magnitudine admodum variabilis.

§ 23. CASEOLUS.

Ochthephila, Beck sp. Alb. 87.(Typ. *H. compacta*, Lowe.)

T. rimato-perf. subglobuloso-depressa v. *globuloso-conoidea obtuse* v. *obsolete subcarinata solida crassa nuda granulata pallide cornea cinerascens obscure fasciata*. Anfr. 6-7 lente crescentes convexiusculi, ult. antice deflexo. Apert. lunato-rotundata subcircinata, labris convergentibus approximatis subcontinuis. Perist. undique arcuatum fere circumdatum simpliciusculum obtusum v. reflexum.

59. *H. CONSORS*, Prim. 51. t. 6. f. 3; Küst. M. et C. p. 147. no. 582. t. 92. f. 1, 2 (male); Pf. i. 195.

Hab. in Portu S^{to}.

Var. α . recens major, subtus lævigata (*H. consors*, Küst. l. c.); β . recens major, subtus sparsim subgranulata; γ . fossilis minor, subtus lævigata; δ . fossilis minor, subtus sparsim subgranulata.

60. *H. CALCULUS*. *T. rimato-subperf. subecarinata orbiculato-convexa solida crassiuscula, tota subtiliter utrinque eleganter et confertim granulosa, supra inconspicue v. remote striata, subflavescenti-cinerea, apice lævi fusco, fuscoque subindistincte bifasciata, aperturam versus pallide ochracea; spira convexa raro subconoidea, sutura distincta; anfr. 5½-6 convexis, ult. subtus convexo, antice deflexo, ad apert. vix subcontractiusculo; perf. subrimato-punctiformi coarctata minima; apert. obliqua rotundata fere circumata, labris approximatis subconjunctis; perist. subcontinuo simpliciusculo acuto undique expanso subreflexo.*

Diam. maj. 6½-8, min. 5¼-6¾, alt. 5-6 mill. Anfr. 5½-6.

Hab. in Portu S^{to} rariss.

61. *H. COMPACTA*, Prim. 50, 51. t. 6. f. 2; Pot. et Mich. 79. no. 31; Küst. M. et C. p. 193. no. 645. t. 99. f. 25-27, 27*; Pf. i. 198.

Hab. in Madera et Portu S^{to} recens fossilisque.

Char. essent. *T.* subglobosa rimato-perf. supra grossiuscule subsparsim granulata, subtus egranulata lævis. Variat forma e conoideo-globulosa ad convexo-depressam.

Varr. insigniores: α . *vulgaris*, subconoideo-globulosa, spira elevatiuscula sublævigata (Madera rec. et foss.); β . *major* (*H. consorti* accedens), cet. ut in α . (Mad. foss.); γ . *Porto-sanctana* (*H. compacta*, Küst. l. c.), depressior rudior, magnitudine variabilis, umbil. sæpe subapertiore nec constricto-rimato (Portu S^{to} rec. et foss.); δ . *pusilla*, parvula, supra fere, subtus omnino egranulata, umbil. apertiore spirali nec rimato, cet. ut in γ . (Portu S^{to} foss.).

62. *H. COMMIXTA*. *T. subaperte et spiraliter perf. v. umbil. distincte carinata orbiculato-depressiuscula subarcispira solida supra inæqualiter hinc inde subplicato-costata, utrinque subtiliter*

arenulato-granulosa cinerea v. pallide fusco-cinerea; spira convexa saepe depressa, sutura distincta; anfr. 5-6 planiusculis, ult. carinato, carina saepe linea exurata expressa, antice valde deflexo, ad apert. scrobiculato-constricto contracto; umbil. spiraliter rotundato aperto nec contracto-rimiformi; apert. perobliqua rotundata v. oblique ovali circinata; perist. continuo relevato subsoluto undique reflexiusculo-expanso acuto.

α. major; subtilissime et confertim reticulato-granulata, carina linea subtus exarata prominente, umbil. latiusculo.

Diam. maj. $5\frac{1}{2}$ -6, min. $4\frac{3}{4}$ - $5\frac{1}{2}$, alt. $3\frac{1}{2}$ -4 mill. Anfr. 5-6.

Hab. recens in Portu S^{to} rariss.

Obs. *H. abjectæ* *γ.* proxima; sed multo subtilius granulata, minus plicata v. costata, umbil. largiore, &c.

β. pusilla; minor v. parvula, minus plerumque subtiliter et confertim granulata, carina saepe simplici.

Diam. maj. $4\frac{1}{4}$ -5, min. $3\frac{3}{4}$ - $4\frac{1}{2}$, alt. 3- $3\frac{1}{2}$ mill. Anfr. 5- $5\frac{1}{2}$.

Hab. foss. in Portu S^{to} rariss.

Obs. *H. compactæ* *δ.* magnitudine habituque simillima. Differt testa subtus ut supra distincte granulata.

63. *H. ABJECTA*, Prim. 50; Küst. M. et C. p. 144. no. 578. t. 91. f. 22-24; Pf. i. 188, 189. *H. candisata*, (Menke) Küst. M. et C. p. 193. no. 646. t. 99. f. 34-36; Pf. i. 198. (testa fors. jun. subincompleta).

Hab. in Portu S^{to}.

Varr. insigniores: *α. conulus*, major trochoidea conico-pyramidata, spira elevata, grosse granulata, carina simplici, Prim. l. c. t. 6. f. 1. *β. conuloidea*, minor: cet. ut in *α.* *γ. subdepressa* (*H. abjecta*, Küst. l. c.; *H. candisata*, Menke, ll. cc.), minor orbiculata, spira plus minus subdepressa: cet. ut in *α.* v. *β.* (status vulgariss.). *δ. bicin-gulata*, carina duplicata, spira ut in *α.* *β.* *γ.* variante.

64. *H. SPHÆRULA*, Syn. Diagn. p. 6. no. 21. *T. parvula minutissime perf. v. subimperf. subecarinata turbinato-globulosa v. sphæruloidea*, aliquando conoidea v. trochoidea, arctispira solidula crassiuscula, utrinque grossiuscule sparsim granulata arctique tenuiterque substriata nitidiuscula apicem versus lavi; spira semiglobosa v. conoidea plerumque obtusissima, sutura distincta impressa; anfr. 5-7 convexiusculis lente crescentibus, ult. obsolete subcarinato subtus planato, antice subito deflexo, ad apert. subcontractiusculo; perf. minutissima poriformi; apert. depressa transverse lunata subsinuato-triangulari, callo ventrali basali coarctata, axin versus angustata, labris remotis subconvergentibus lamina junctis; perist. interrupto simpliciusculo s. rectiusculo subexpanso, intus basi distincte calloso, ad axin lamina reflexa subproducta perforationem partim obtegente.

Diam. maj. $4\frac{1}{2}$ -7, min. $4\frac{1}{4}$ -6, alt. $3\frac{1}{4}$ - $5\frac{1}{2}$ mill. Anfr. 5-7.

Hab. in Madera fossilis; in Portu S^{to} et fossilis et recens. Rariss.

Tres adsunt status v. varietates: *α.* fossilis minor sphæruloidea (Syn. Diagn. l. c.), Maderæ; *β.* fossilis submajor trochoidea, Portu S^{to}; *γ.* recens major trochoidea, Portu S^{to}: utroque, præsertim recente, rariss.

§ 24. HYSTRICELLA.

Ochthephila (Beck) sp. Alb. 87.(Typ. *H. bicarinata*, Sow.)

T. perf. v. anguste umbil. conuloidea v. trochiformis, aliquando *turrito-pyramidata acute v. distincte 1-2-carinata solidiuscula asperogranulata v. echinulata subfasciata*. *Anfr.* 6-9 lente crescentes *planiusculi*, ult. valde *carinato subtus planato, antice deflexo*. *Umbil. parvus anguste cylindricus v. subspiralis constrictus*. *Apert. circularis circinata labris connexis; perist. continuum solutum expanso-reflexiusculum tenue acutum.*

65. *H. BICARINATA*, Sow. in Zool. Journ. i. 58. t. 3. f. 7; Wood, Suppl. t. 8. f. 85; Küst. M. et C. pp. 141, 142. no. 574. t. 91. f. 8-11; Pf. i. 190. *H. duplicata*, Prim. 58. t. 6. f. 20; Pot. et Mich. Gal. p. 82. no. 40.

Hab. in Portu S^{to}, vulg.

66. *H. ECHINULATA*, Prim. 57. t. 6. f. 19; Küst. M. et C. p. 140. no. 572. t. 91. f. 1-4; Pf. i. 189, 190.

Hab. in Portu S^{to}.—Subvar. 1. *infra bifasciata*, vulg.; 2. *infra late unifasciata s. fasciis confluentibus*, rara.

Obs. Præcedenti nimis affinis et forsitan mera var.

67. *H. OXYTROPIS*, Prim. 57. t. 6. f. 18; Küst. M. et C. p. 142. no. 575. t. 91. f. 12, 13; Pf. i. 190.

Hab. in Portu S^{to}, rarior.

68. *H. TURRICULA*, Prim. 58. t. 6. f. 21; Küst. M. et C. p. 141. no. 573. t. 91. f. 5-7; Pf. i. 190, 191.

Hab. in Insula Superiore (Ilhéu de Cima) juxta Portum S^{um}, nec alibi.

69. *H. VERMETIFORMIS*. *T. anguste umbilicata distincte bicarinata pyramidato-conoidea solidula crassiuscula utrinque granulata; spira elevata anfractui ultimo quasi superimposita, carina inferiore suturæ distinctæ superincumbente; anfr. 7-7½ planiusculis conspicue bicarinatis, carina inf. prominente sulco infra exarata, ult. antice valde deflexo; umbil. parvo; apert. ovali-rotundata circinata, labris continuis conjunctis; perist. undique soluto relevato tenui acuto.*

Diam. maj. $8\frac{1}{2}$ -9, min. $8\frac{1}{4}$ - $8\frac{3}{4}$, alt. 7- $8\frac{1}{2}$ mill. *Anfr.* 7- $7\frac{1}{2}$.

Hab. fossilis in Portu S^{to}, T. V. Wollaston.

Obs. Anfractibus primoribus *Vermeti* cujusdam (e. g. *V. lumbricalis*, L.) simillima. *Umbil.* minor quam in *H. cheiranthicola*, fere ut in *H. oxytropide*; multo minor quam in *H. pulvinata*.

70. *H. MUSTELINA*. *T. perf. v. anguste umbilicata unicarinata obtuse conoidea subabbreviata solidiuscula undique grosse et confertim saccharato-granulata exasperata subechinulata cinereo-fuscescens v. columbina, fusco anguste fasciata; spira subabbreviata-conoidea apice perobtusata, sutura distincta subimpressa; anfr.*

7-7½ *planiusculis nec relevato-superimpositis nec supra suturam relevato-tumidis v. carinatis*, ult. *subobsolete carinato antice deflexo*; *umbil. parvo angusto subconstricto*; *apert. rotundata, labris subremotis convergentibus callo junctis*; *perist. interrupto expanso-reflexiusculo intus in angulum producto umbilicum coarctante*.

Diam. maj. 7-8, min. 6½-7¼, alt. 6½-6¾ mill. Anfr. 7-7½.

Hab. in Portu S^{to}, T. V. Wollaston, 1849.

H. cheiranthicola, cui proxima, minor.

71. *H. CHEIRANTHICOLA*, Prim. p. 57.

Var. *α. spilospira*; *spira maculata pallida, linea supra carinam fusca spirali*. *H. cheiranthicola*, subvarr.: 2. *maculata*, et 3. *albida*, Prim. l. c.

Var. *β. tæniospira*; *spira fascia unica lata nigricante, carina suturae pallidis*. *H. cheiranthicola*, Subvar. 1. *zonata*, Prim. l. c. t. 6. f. 17; *H. cheiranthicola*, Küst. M. et C. p. 146. no. 581. t. 91. f. 31, 32; Pf. i. 212.

Hab. in Portu S^{to}, *α. vulg.*, *β. rarior*. Subvarr. in *α*: 1, *subtus fasciis binis distinctis*; 2, *iisdem fere v. omnino confluentibus*; 3, *fascia unica distincta superiore in fascias 2 v. 3 lineares secedente*; 4 (Prim. l. c. Subv. 3, *albida*), *albida, fasciis evanidis v. nullis*. In *β*: 1 (Prim. l. c. t. 6. f. 17), 2, 3, *ut in α*.

§ 25. DISCULA.

Ochthephila (Beck) sp. Alb. 88.

(Typ. *H. polymorpha*, Lowe.)

T. umbilicata e trochiformi depresso-discoidea orbiculata distincte carinata solida crassiuscula scabro-granulata glabra albido-cinerea v. pallide cornea, fusco fasciata et maculata. Anfr. 7-8 *lente crescentes plerumque atrito-planati*, ult. *acute carinato depresso, subtus planato, antice deflexo*. *Umbil. apertus patulus spiralis*. *Apert. depresso lunato-rotundata, labris subconvergentibus remotis interruptis callo junctis*. *Perist. simpliciusculum fere rectum subreflexum, intus late albo-incrassatum, basi subcallosum*.

72. *H. POLYMORPHA*. *T. subglobuloso-conoidea subtus convexa undique grosse saccharato-granulata scabra, carina obtusiuscula submedia, sæpe linea subtus exarata expressiuscula, spira plus minus elevata*; anfr. 8 *fere convexiusculis sutura subimpressa distincta*; *umbil. mediocri subspirali profundo, parietibus subde-clivibus abruptis*.

Diam. maj. 9½-12, min. 9-11, alt. 7-8 v. 9 mill. Anfr. 7-8.

H. polymorpha α. irrasa, Prim. 54. *H. saccharata*, MSS. olim.

H. polymorpha, Pf. i. 213; Küst. M. et C. p. 145. no. 580. t. 91. f. 28-30.

Var. *α. pallescens*; *spira maculato-pallida, linea supra carinam fusca spirali sæpe evanescente*.

Subvarr.:—1, subtus distincte bifasciata; 2, fasciis duabus subtus latissimis fere v. omnino in unam confluentibus; 3, subtus unifasciata, fascia 2^{da} exteriore evanescente (Prim. l. c. t. 6. f. 11); 4, fasciis omnibus utrinque evanidis sc. angustissimis v. nullis.

Hab. in Promont. S^{ti} Laurentii Maderæ; 1 et 3 vulgatiss., 4 rariore, 2 rariss.

Var. β. nigricans; spira fasciato-nigricante, fascia unica lata nigro-coffæacea, carina modo suturaque pallidis.

Subvarr. 1, 2, 3 ut in *α*; 4 deest.

Hab. præsertim in Insula quadam juxta Prom. S^{ti} Laurentii, Ilheo de Fora dicta, rarior: Subv. 1 vulgatiore.

Obs. Spira altitudine admodum variat: nunc trochoideo-conoidea, nunc discoideo-depressa. Umbil. ut in *H. cheiranthicola*. Differt, testa grosse saccharato-granulata minus trochoidea, spira minus elevata, anfr. nec superimpositis nec carina supra suturam inciso-impressam prominente, sutura distincta sed minime inciso-impressa.

73. *H. PULVINATA*, Syn. Diagn. 6. no. 22. *T. albida depresso-conoidea undique subexquisite granulata subtus planiuscula s. plano-convexa, carina acutiuscula fere sed leviter expressa subinfera; spira conoideo-elevata pulvinata sc. anfractui ult. subito latiori tumidulo quasi superimposita v. insidente, anfr. 7½ convexiusculis, inf. saepe tumidulis, sutura impressa distincta; umbil. patulo latiusculo spirali profundo; apert. subangulata, perist. sinuato.*

H. polymorpha ζ, pulvinata, Prim. 56. t. 6. f. 16.

Diam. maj. 9–11, min. 8½–10, alt. 7–8 mill. Anfr. 7–8.

Subvarr. 1, spira vix submaculata, subtus efasciata; 2 (Prim. l. c. t. 6. f. 16), spira maculata, subtus fasciis 1–2 plus minus continuis.

Hab. in Portu S^{to} rarior.

Obs. Differt ab *H. polymorpha* testa pallescente albida, apice fusco-cærulescente, minus grosse granulata, subtus planiore, umbil. majore latiore nec parietibus adeo declivibus, carina subacutiore inferiore, sutura magis impressa, anfr. semetipsis v. ultimo abrupte latiori supra tumidulo quasi superimpositis.

74. *H. ATTRITA*, Syn. Diagn. 7. no. 23. *T. pallide cornea depresso-discoidea subtus convexa solida undique tenuiter et exquisite reticulato-granulata, carina supera acuta saepe expressiuscula; spira convexo-depressa, anfr. 7 planatis attritis, sutura obsoleta; umbil. infundibuliformi, parietibus abrupte declivibus; apert. angulata saepe subtrigona, intus coarctata, perist. subsinuato intus valde incrassato-callosa subplicato calloque saepe ventrali distincto.*

H. polymorpha δ. attrita, Prim. p. 55; *II. tectiformis*, Wood (nec Sowerby).

Diam. maj. 8½–10½, min. 8–10, alt. 5½–6 mill. Anfr. 6½–7.

Subvarr.: 1, pallida, supra maculato-variegata, subtus fusco anguste 1–2–3-fasciata (Prim. l. c. t. 6. f. 14; Wood, Suppl. t. 8. f. 83); 2, fusco-coffæacea, subtus circa umbil. pallida; 3, tota variegata, fasciis evanescentibus.

Hab. in Portu S^{to} vulg.

Obs. Forma et habitu peculiari ab affinibus omnino distincta statim dignoscitur. Anfr. ult. peristoma versus late ochraceo-albidus, fasciis evanescentibus.

75. *H. TABELLATA*, Syn. Diagn. 7. no. 24. *T. pallide cornea plano-discoidea supra planissima subtus convexa, tenuis, undique grossiuscule scabro-granulata, carina supera acuta; spira tabellato-planata, anfr. 5½ planis attritis, sutura subobsoleta, umbil. patulo spirali.*

Diam. maj. 6–7½, min. 5½–7, alt. 3–3¼ mill. Anfr. 5–6.

Hab. in Madera, rara.

Species distinctissima, *H. maderensi*, Wood, quodammodo affinis. Carina distinctissima acuta, sed vix unquam expressa.

76. *H. SENILIS*. *T. grisea fusco lentiginosa et fasciata convexo-depressa v. depresso-discoidea plerumque limbato-carinata solida undique grosse albo-granulata scabra, carina acuta sæpissime expresso-prominente sub supera; spira plerumque depressa subplanata, anfr. planatis subattritis, sutura obsoleta; umbil. spirali, nunc minimo poriformi, nunc (in exemplis adultis majoribus vetustioribus) subpatulo majore.*

H. senilis et *poromphala*, Syn. Diagn. 7. nos. 25 et 26.

Var. α. nebulata; spira lentiginoso-maculata, fusco unilineata.

Subvarr.: 1, subtus fusco bifasciata; 2, fasciis subtus duabus fere v. omnino confluentibus; 3, subtus unifasciata; 4, omnino efasciata albida.

Diam. maj. 7–13, min. 6½–11, alt. 4–6½ mill. Anfr. 6–7.

Var. β. vittata; spira late fusco unifasciata, carina suturaque pallidis.

Subvarr.: 1, 2, 3, 4 ut in *α*: 2 duas habet formas; *a*, spatio circa umbil. pallido sat largo; *b*, eodem angustissimo.

Diam. &c. ut in *α*.

Var. γ. pusilla; parvula subconoidea, spira elevatiore.

Diam. maj. 5½–6½, min. 5–6, alt. 4–4½ mill. Anfr. 6–6½.

Hab. in Ins. Desertis, *α* vulgatiss., *β* vulg., *γ* (in Ins. Des. Austr.) rariss., *α* etiam in Madera ad Caniçal foss.

Obs. Spira altitudine pervariabilis: nempe in Ins. Des. Austr. elevatior, anfr. distinctioribus imo convexiusculis; sutura subimpresiore, carina ob spiram altiore media, testa lucidiuscula fere minore (diam. maj. 7–10 mill.) = *H. poromphala*, Syn. Diagn. 1. c.

77. *H. LINCTA*, Syn. Diagn. 7. no. 27. *T. cinerea, sæpe roseo-purpurascens suffusa, fusco-purpureo maculata et fasciata convexo-depressa orbiculato-discoidea obtuse carinata tenuiuscula, supra tenuiter, subtus obsolete granulata læviuscula lucida quasi lincta; carina obtusa exacte media nunquam expressa; spira convexo-depressa, anfr. 7 convexiusculis distinctis, sutura impressa; umbil. spirali subpatulo mediocri.*

Var. α. rosea; major roseo-purpurascens, spira fusco subtessellatim maculata, fascia lineari fusca supra, 1–2 infra carinam, exteriore sæpe in plures lineares soluta.

H. polymorpha β . *depressiuscula*, Prim. 54. t. 6. f. 12.

Diam. maj. $9\frac{1}{2}$ – $11\frac{1}{2}$, min. 9– $10\frac{1}{2}$, alt. $5\frac{1}{2}$ – $6\frac{1}{2}$ mill. Anfr. $6\frac{1}{2}$ – $7\frac{1}{2}$.

Hab. in Madera Promont. Garajão versus.

Var. β . *cinerea*; minor pallida, spira fusco lentiginoso-maculata.

Diam. maj. 7–10, min. $6\frac{1}{2}$ –9, alt. 5–6 mill. Anfr. $6\frac{1}{2}$ –7.

Subarr. β : 1, supra carinam fusco lineari-unifasciata, infra fasciis 1–2, exteriore saepe evanida v. soluta (*H. polymorpha* γ . *arenicola*, Subv. 1, Prim. 55. t. 6. f. 13; *H. polymorpha*, Küst. M. et C. t. 91. f. 25–27?); 2, *efasciata* (*H. pol.* γ , Subv. 2, Prim. p. 55).

Hab. recens ad Caniçal Maderæ.

Obs. Color roseo-purpurascens mox evanidus, in β inconspicuus.

78. *H. PAPILIO*, Syn. Diagn. 7. no. 28. *T. late porcellano-lactea fulvo lentiginosa et fasciata convexo-depressa orbiculato-discoidea distincte carinata solidiuscula, supra subtiliter arenulato-granulata, subtus nitida lævis planiuscula sc. plano-convexa; carina subacuta exacte media nunquam expressa; spira convexiuscula subpulvinata sc. anfractui ult. antice subito latiori tumidulo insidente; anfr. $7\frac{1}{2}$ planatis attritis, sutura (nisi antice) obsoleta; umbil. patulo spirali latiusculo; apert. subangulata.*

H. polymorpha ϵ . *calcigena*, Prim. 56.

Diam. maj. 10–12, min. $9\frac{1}{2}$ – $10\frac{1}{2}$, alt. 6– $6\frac{1}{2}$ mill. Anfr. 7–8.

Subarr. 1, *efasciata* omnino fere candida, supra obscure maculata (Prim. l. c. t. 6. f. 15); 2, subtus 1–2-fasciata, fasciis saepe interruptis, nunc distinctis, nunc confluentibus, fascia exteriore nunc in plures soluta, nunc evanescente, supra distinctius maculata.

Hab. in Ins. Infera (I. de Baxo) juxta Portum S^{ma} rarior.

Obs. Species inter *H. pulvinatam* et *discinam* media, utrique adeo affinis ut neutri magna sine perturbatione v. confusione conjungi potest. Ab utraque scilicet carina haud expressa testaque subtus nitida lævi i. e. fere (nisi interdum casu ut videtur quodam antice) egranulata differt. Testa subtus magis planata, spira minus elevata nec conoidea, carina magis acuta, umbil. minus profundo, quam in *H. pulvinata*: testa subtus minus planata, spira paullo magis elevata, carina minus acuta, umbil. subcontractiore subprofundiore quam in *H. discina*. Granulatio potius *H. discinae* supra: sc. quodammodo subtilior obsoletiorque quam in *H. pulvinata*. Cuilibet eam pro forma *H. pulvinatae* depressa habenti oppugnat, non modo forma depresso-discoidea spiraeque minus alta minime conoidea, sed et anfr. planati attriti suturaeque (nisi paullum antice) obsoleta, necnon carina acutior non expressa. Ab *H. discina* tamen spira subaltiore subpulvinata, sutura antice subimpressa, testa subtus convexiore, anfr. ult. minus depresso antice supra tumidulo, carina minus acuta nec limbata, umbil. subcontractiore parietibus fere declivioribus, apert. subangulata, quamvis ad illam habitu vel proxime accedens, *characteribus* magis recedit.

79. *H. DISCINA*, Syn. Diagn. 7. no. 29. *T. fulva v. cinereo-fulvescens supra sublentiginosa subtus fusco-fasciata, orbiculato-discoidea utrinque subplanata acutissime carinata, supra subtiliter, subtus vel subtilissime et reticulatim obsolete granulata, subtus*

praesertim nitidiuscula planata; carina peracuta expressiuscula sublimbata exacte media; spira convexo-depressa, anfr. 7 planatis attritis, ult. valde depresso complanato, sutura obsoleta; umbil. largo patulo spirali minime profundo.

Diam. maj. 10–12½, min. 9–11, alt. 5½–7 mill. Anfr. 6½–7.

Subarr. 1, supra fusca submaculata, infra pallida fusco fasciata, fascia plerumque unica distincta; 2, tota fusca subunicolor praeter spatium latum pallidum circa umbilicum; 3, tota pallida efasciata.

Hab. in Portu S^{to} vulg.: 3 rariss.

80. *H. TESTUDINALIS*, Syn. Diagn. 7. no. 30; Küst. M. et C. t. 154. f. 36–38. *T. ochraceo- v. fulvo-cornea fusco-castaneo cinereoque lentiginosa et fasciata orbiculato-discoidea nitidiuscula obtuse carinata, subtus convexa laevis lucida, supra subtilissime granulata et arcte striata, carina obtusiuscula supera; spira depressa convexo-planata, anfr. 8 convexiusculis, sutura impressa; umbil. largo patulo spirali.*

Diam. maj. 17–19, min. 16–17, alt. 8–9 mill. Anfr. 7–8.

Hab. in Portu S^{co}. Inv. T. V. Wollaston.

Obs. Testa ob magnitudinem inter affines insigniorem coloresque pulchre testudinales eximia. Linea spirali fusca distincta, supra carinam in medio anfractuum per spiram continuata, carina quasi duplicata videtur.

§ 26. TECTULA.

Trochomorpha, sp. Alb. 116.

(Typ. *H. Bulveriana*, Lowe.)

T. umbilicata cupuloideo-trochiformis subdepressa acutissime limbato-carinata subtenuis glabra nitidiuscula granulata fasciata. Spira cupuloidea. Anfr. 7–8 lente crescentes planati attriti quasi confluentes, sutura obsoleta, ult. eximie carinato depresso subtus planato antice deflexo. Umbil. mediocris apertus spiralis. Apert. rotundata labris conniventibus interruptis, callo rectilineari raro subconjunctis. Perist. incrassato-subreflexum.

81. *H. LYELLIANA*, Syn. Diagn. 8. no. 31; Küst. M. et C. t. 154. f. 39–41. *T. umbil. depresso-trochiformis laevis, supra omnino egranulata subtilissime spiraliter striata cinereo-fusca sublentiginosa obscure fasciata, subtus roseo-purpurascens, mox pallide cinnamomea, fusco distinctissime fasciata; spira obtuse subconcoidea depressa, sutura ob carinam subprominulam distinctiuscula; anfr. 8, ult. sublimbato-carinato antice valde deflexo et infra carinam descendente; umbil. minime profundo; apert. rotundata; perist. incrassato-reflexo subexpanso aequali, extus ad carinam haud angulato, labris conniventibus interruptis, callo rectilineari aliquando junctis.*

Diam. maj. 13½–15½, min. 12–14, alt. 7–8 mill. Anfr. 8–8½.

Hab. in Ins. Des. Media s. Majore, in Promont. Occidentali alto graminoso.

Subvarr. 1, subtus bifasciata; 2, fasciis subtus duabus in unam latam fere v. omnino confluentibus; 3, subtus unifasciata, 2^{da} exteriore evanescente.

Obs. T. supra oculo armato obsolete confertissime spiraliter striata; subtus paullo infra carinam obsolete subgranulata, medio (ut supra) omnino egranulato lævi.

82. II. ALBERSII, Syn. Diagn. 8. no. 32. *T. umbilicata depresso-trochiformis utrinque subtiliter granulata cerino-cornea fusco fasciata, curina media, subtus convexiuscula; spira obtuse subconoidea depressa, sutura obsoleta; anfr. 8, ult. sublimbato-carinato antice deflexo et infra carinam paululum descendente; umbil. profundo; apert. transverse ovali depressa; perist. incrassato-reflexo aequali, extus ad carinam haud angulato, labris subconniventibus interruptis lamina tenuissima rectilineari aliquando junctis.*

Diam. maj. 14–16, min. 13–15, alt. 8–9 mill. Anfr. 7½–8.

H. Bulveriana, Küst. M. et C. t. 13. f. 9, 10.

Hab. in Portu S^{to} cum *H. Bulveriana* vera commixta.

Subvarr. 1, fasciata; 2, virescenti-citrina v. pallide prasina, omnino efasciata et immaculata, rariss.

Obs. Striolarum spiraliū vestigia inter granulationes obsoletissima oculo armato sedulo scrutanti apparent.

83. H. BULVERIANA, Prim. 44. t. 5. f. 11; Pf. i. 208. *H. Bulverii*, Wood, Suppl. t. 8. f. 82. *H. rota* (Lowe ex fide Terver), Pot. et Mich. Gal. p. 106. no. 106. *H. Rota*, Lowe, MSS. olim.

Hab. in Portu S^{to}.

Duæ adsunt varr.: α , spira planata; β , subminor, spira elevatiore. *Subvarr.* utriusque var. etiam duæ: 1, subtus distincte fasciata (Prim. l. c. t. 5. f. 11); 2, fasciis confluentibus.

Obs. Differt ab *H. Albersii* testa (præsertim jun.) depresso-tenui subtus planata, spira obtusiore cupuloideo-rotundata, carina infera, late limbata, apert. angulari, peristomate recto simpliciusculo, anfr. ult. haud infra carinam descendente, colore. Striolarum spiraliū ne minima quidem vestigia detexi.

84. H. TECTIFORMIS, Sow. in Zool. Journ. i. p. 57; Prim. p. 45; Pf. i. 208; Küst. M. et C. p. 158. no. 599.

Hab. in Portu S^{to} et in I. de Baxo juxta Portum S^{um}.

Subvarr. tres: 1, tota cretaceo-candida (Sow. l. c. t. 3. f. 6; Prim. l. c. t. 5. f. 12; Küst. M. et C. l. c. t. 94. f. 13–15); 2, fusco supra 1-, subtus 2-fasciata; 3, fusco supra 1-fasciata, subtus fasciis confluentibus.

Obs. Umbil. magnitudine pervariabilis.

§ 27. CRASPEDARIA.

(Typ. *H. Delphinula*, Lowe.)

T. perspective umbilicata depresso-trochoidea obtusa latissime limbato-carinata cancellatim striolata subtus spiraliter costellata.

Anfr. 7-8 planati confluentes, carina plicato-dentata per spiram excurrente prominente imbricati, sutura obsoleta; ult. subtus infra carinam convexo semicylindrico, antice valde deflexo producto disjuncto. Umbil. amplus profundus eximie perspectivus. Apert. relevato-depressissima subquadrato-circularis. Perist. continuum omnino relevato-solutum fimbriato-expansum patulo-reflexum intus et extus ad carinam angulatum. Axis plane nullus.

Obs. Sectio *Creneis* veris (*Creneæ*, Alb. pars) per *H. cariosam*, Oliv. subaffinis, carina quasi foliaceo-membranacea crispula subplicata v. sinuata erosulo-crenata, necnon umbilico Solariformi patulo perspectivo intus crenato-granuloso perquam mirabilis.

85. *H. DELPHINULA*, Prim. 64; Syn. Diagn. 8. no. 33. *T. latissime et perspective crenato-umbilicata depresso-trochoidea fanulo-sinensiformis apice obtusissima planata, latissime limbato-carinata subochraceo-cretacea decolorata, infra carinam spiraliter costellata et decussatim cancellata, supra tenuiter lineolis obliquis spiralibusve undatis arcte arenulato-reticulata; spira imbricato-carinata cupuloideo-tectiformi obtusissima apice plano-truncata; anfr. 7-8 subplanatis confluentibus infra suturam obsoletam carina latissima fimbriato-prominente quasi foliaceo-membranacea sinuato-erosula subundato-crispula conspicua imbricatis, ult. infra carinam semicylindrico distincte spiraliter costato et ruguloso-cancellato aspero, antice insigniter deflexo disjuncto producto; umbil. solariformi largo profundissime perspectivo intus crenato-rugoso cancellatim granuloso; apert. relevato-obliquissima subprona i. æqualiter circulari subquadrato-rhombea intus et extus angulata; perist. circinato-producto undique relevato-disjuncto expanso-tubæformi late reflexo margine tenui acuto subplicato flexuoso biauriculato s. utrinque subcanaliculato-angulato.*

Diam. maj. 18-23, min. 15½-21, alt. 10-11 mill. Anfr. 7-8.

Delphinula, Bowdich, Exc. in Mad. 140. f. 33 a, b.

Hab. fossilis ad Caniçal Maderæ vulgatiss.: nec alibi!

Obs. Umbil. magnitudine subvariabilis.

§ 28. CORONARIA.

Ochthephila, (Beck) sp. Alb. 87.

(Typ. *H. tiarella*, Webb.)

*T. pervio-umbilicata trochiformi-mamillata v. depresso-discoidea bicarinata eleganter costellata et sulcata, spira plicato-coronata. Anfr. 5-7 distincti, ult. subtus infra carinas convexo semicylindrico, antice valde deflexo, ad apert. constricto. Apert. circularis v. coarctato-triangularis relevato-depressissima. Umbil. apertus fere largus perspectivus. Perist. circinatum omnino solutum subproductum continuum sinuato-subexpansum acutum, nunc simplex, nunc quasi distorto-duplicatum margine intra stricturam aperturæ immerso, labroque intus tuberculo (ut in *H. paupercula*) unidentato.*

Obs. Sp. fere cretaceo-albidæ, omnes forsan subterraneæ.

86. *H. TIARELLA*, Webb, Syn. Moll. Can. p. 12. no. 18; Ejusd. Hist. Canar. T. ii. p. 62. t. 1. f. 26-28; Pot. et Mich. Gal. p. 114. no. 127; Küst. M. et C. p. 143. n. 576. t. 91. f. 14-16; Pf. i. 191; Prim. (Ed. 1851) App. p. xv.

Hab. ad Caniçal Maderæ vulgatiss. foss. nec recens. Prorsus errore inter species Canarienses enumeratam credo.

Obs. Umbil. magnitudine pervariabilis.

87. *H. CORONULA*, Syn. Diagn. 8. no. 34. *T. late umbilicata convexo-depressa subdiscoidea solidiuscula opaco-cretacea sub-bicarinata, subtus exquisite cancellatim costellata; spira convexo-depressa coronata; anfr. 5-6 contabulatis s. supra carinam superiorem prominentem sinuato-dentatam planatis et foveolatim tuberculato-plicatis, tuberculis æquidistantibus radiantibus, sutura distincta; umbil. largo patulo pervio profundo; apert. rotundata subtriangulari constricta; perist. undique soluto expanso sinuato acuto.*

Diam. maj. $5\frac{1}{2}$ - $7\frac{1}{2}$, min. $5\frac{1}{4}$ - $6\frac{1}{2}$, alt. 3- $4\frac{1}{2}$ mill. Anfr. 5-6.

Hab. in summo jugo Ins. Des. Australis, statu semifossili, v. saltem emortua omnino ecololata, hinc inde obvia.

Obs. Species elegantissima, subtus insigniter ac pulchre spiraliter costata et sulcata costellisque transversis decussantibus eximie cancellata; costis subseptenis exquisite expressis, superioribus subprominentioribus, summa carinam inferiorem subindistinctam formante.

88. *H. CORONATA*, Desh. *T. late umbil. orbiculato-discoidea planulata solidiuscula subhyalina bicarinata, supra pallide rufescens, subtus subopaco-lactea costisque ab umbilico divergentibus flexuosis remotis infra carinam inferiorem limbato-prominentem integram rotato-radiata; spira subconvexo-depressa subcoronata; anfr. 5, carina superiore oblique tuberculato-plicata distinctissimis, sutura excavata, carina inferiore simplici acuta limbata; umbil. largo patulo pervio profundo; apert. sinuato-triangulari constricta tuberculo maximo ad labrum intus prominente coarctata; perist. undique soluto expanso sinuato tenui acuto.*

Diam. maj. $5\frac{1}{2}$ - $6\frac{1}{2}$, min. 5-6, alt. 3- $3\frac{1}{2}$ mill. Anfr. 5-6.

H. coronata, Desh. in Fér. Hist. i. 71. t. 69 K. f. 1-4 (statu fossili).

H. juliformis, Syn. Diagn. 8. no. 35 (Febr. 1852).

Hab. in Portu S^{to}. Semifossilis in arena calcarea ipse A.D. 1828 sat abundanter legi. Recens in cacumine extremo orientali Insulæ A.D. 1848 rariss.: detexit Wollaston. In Madera nullibi extat.

§ 29. PLACENTULA.

Ochthephila, Beck, sp. Alb. 87.

(Typ. *H. maderensis*, Wood.)

T. aperte plerumque late umbilicata orbiculata depresso-lenticularis angulato-carinata solidiuscula costellato-striata subtiliter granulata glabra nitidiuscula plerumque fasciata. Anfr. 5-7 leniter

crescentes subplanati, ult. subtus convexo, antice subito deflexo. Umbilicus apertus fere patulus spiralis. Apert. depressa valde obliqua circularis, labris conjunctis. Perist. circinatum continuum subsolutum subincrassatum vix subreflexum.

Obs. Disculae proxima. Differt habitu, apertura circulari, labris conjunctis circinatis, testa subtiliter nec grosse granulata semper lenticulari. Granulae nempe oculo armato tantum conspicuae. Cam-pylaea, (Beck) Alb. 81, etiam affinis.

89. *H. COMPAR*, Prim. 48. t. 5. f. 23; Pf. i. 214.

Hab. in Madera.

90. *H. MADERENSIS*, Wood, Suppl. t. 8. f. 84; Prim. 48. t. 5. f. 22; Küst. M. et C. pp. 147, 148. no. 583. t. 92. f. 9, 10; Pf. i. 213.

Status (vix var.) major: *H. taeniata*, Webb et Berth. Syn. Moll. App. p. 21. no. 2; Ejusd. Hist. Canar. T. ii. Pars ii. p. 63. t. 3. f. 18-20 (auctae); Pf. i. 189.

Hab. vulgatiss. in Madera, nec alibi! *H. taeniata*, Webb, ex exemplaribus Maderensibus procul dubio orta.

Subvarr. tres: 1, subtus fascia angusta distincta; 2, fascia lata infra carinam; 3, omnino efasciata; 1 vulgatiss.; 2 rarior; 3 vulg.

Diam. maj. fere 6, rariiss. usque ad 9 v. 10 mill.

91. *H. SPIRORBIS*, Syn. Diagn. 6. no. 36. *T. parvula latissime umbilicata depresso-lenticularis planiuscula subobtusè angulato-carinata tenuiuscula, supra tota granulata et confertim argute substriata, subtus laeviuscula lucida aperturam versus subgranulata, utrinque obscure fusco unifasciata subunicolor fasciis evanescentibus; spira planato-depressa, apice obtusissima; anfr. 5 convexiusculis, sutura impressa distincta; umbil. amplo patulo profundo perspectivo, pariete planato; apert. rotundata oblique subovali; perist. undique soluto subexpanso albo.*

Diam. maj. 5-5½, min. 4-4½, alt. 2¼-2½ mill. Anfr. 5.

Hab. in Madera rariss.

92. *H. LEPTOSTICTA*, Prim. 49. t. 5. f. 24; Küst. M. et C. t. 152. f. 9, 10; Pf. i. 214.

Hab. in Madera.

Subvarr. 1, cuprea v. purpureo-fusca, circa umbilicum lactescens, distinctius bifasciata; 2, pallida, cornea, fasciis evanidis. Nisi vero in exemplaribus recenter captis subvarr. ægre distinguuntur; colore purpureo v. roseo cito evanescente.

93. *H. MICROMPHALA*, Syn. Diagn. 9. no. 38. *T. subrimato-umbilicata orbiculata subglobulosa depressa obtuse subcarinata tenuiuscula tota confertim et reticulatim arenulato-granulata, subtus sublævior lucida subpellucida aperturam versus opacolactescens, fusco infra carinam obscure unifasciata; spira convexa exsertiuscula, anfr. 6 convexiusculis, sutura distincta; umbil. perparvo subrimato-poriformi vix spirali; apert. oblique ovali*

subcontracta; *perist. vix undique soluto contractiusculo simplici acuto albo.*

Diam. maj. 7-8, min. 6-7½, alt. 4-5 mill. Anfr. 6.

Hab. in Insulis Des. Majore et Minore vulg.

94. *H. DEALBATA*, Prim. 48; Küst. M. et C. p. 262. no. 245. t. 38. f. 20, 21; Pf. i. 166.

Hab. in Portu S^{to}.

Var. α, (Prim. l. c. t. 5. f. 21) tota distincte granulata; *β*, (*H. dealbata* *β*, Prim. l. c.; *H. fictilis* *β*, Syn. Diagn. 9. no. 37) granulis subobsoletis læviuscula; *γ*, fere minor obscure bifasciata, in *H. fictilem* quodammodo transiens.

95. *H. FICTILIS*, Syn. Diagn. 9. no. 37. *T. latiuscule umbilicata orbiculato-depressa planato-lenticularis subacute angulato-carinata solidiuscula lævigata obsolete v. indistincte hinc inde, præsertim supra, subgranulata, subtus nitida lævis ad carinam fusco sæpissime bifasciata, ore ochraceo; spira convexo-depressa anfractui ultimo antice tumidulo quasi superimposita; anfr. 5-5½ subplanatis hinc inde rudiusscule oblique striatis l. subplicatis, sutura subindistincta antice impressa; umbil. latiusculo subspirali patulo, pariete planato; apert. rotundato-ovali; perist. undique soluto relevato, incrassato expansiusculo ochraceo.*

Diam. maj. 7-8, min. 6-6½, alt. 3½-4 mill. Anfr. 5-5½.

Hab. in Portu S^{to} gregaria.

Subvarr. 1, plus minus fusco-castanea, fusco bifasciata; 2, pallescens, fusco bifasciata; 3, decolorata alba, fasciis evanidis v. nullis (*H. fictilis*, Küst. M. et C. t. 154. f. 29-31, opt.).

§ 30. CARACOLLINA, Beck.

Gonostoma, (Held) pars, Alb. 94.

(Typ. *H. barbula*, Charp.)

T. aperte pervio-umbil. depresso-planata lenticularis acute angulato-carinata arctispira sæpissime nuda sat firma pallide corneo-rufescens unicolor, supra arcte striolata v. costellata. Anfr. 5-7 æquicrescentes plano-convexiusculi, ult. depresso acute carinato antice vix deflexo. Umbil. mediocris sat largus spiralis. Apert. subangularis anguste depresso-lunata coarctata, labris interruptis remotis. Perist. subflexuosum, nunc reflexo-labiatum dentato-sinuatum, nunc simplex acutum basi subreflexum.

Obs. Hispidellæ (necnon *Euromphalæ*) per *H. actinophoram* in *Actinellis* huc quoque spectantibus affinis.

96. *H. LENTICULA*, Fér. Prodr. p. 37. no. 154; Hist. i. 361. t. 66*. f. 1; Pot. et Mich. p. 91. no. 63; Rossm. vii. p. 12. f. 452; Küst. M. et C. t. 13. f. 20, 21; Pf. i. 211. *H. subtilis*, Prim. 45. t. 5. f. 13.

Hab. in Madera; et in Portu S^{to}, T. V. Wollaston.

§ 31. CHEILCTREMA, Leach, Alb. 117.

Latomus, Fitz.(Typ. *H. lapicida*, L.)

T. aperte pervio-umbil. depresso-planata lenticularis acute angulato-carinata granulata nuda firma nebulatim rufo-fusca efusciata. Anfr. 5 planati, sutura distincta marginata, ult. depresso acute carinato, antice valde deflexo. Umbil. largus perspectivus. Apert. obliquissima deflexa transverse ovalis. Perist. reflexo-labiatum circumnatum utrinque angulatum, labris continuis conjunctis undique relevato-solutis.

97. *H. LAPICIDA*, L. Drap. 111. t. 7. f. 35-37; Rossm. i. p. 63. t. 1. f. 11; Gray, Man. 140. t. 5. f. 51; Pf. i. 370. *Carocolla lapicida*, Lam. Hist. vi. 2. p. 99.

Hab. fossilis rariss. in Portu S^{to}, quo exemplar unicum in arena calcarea Helicifera A.D. 1849 detexit oculatissimus Wollastonus. Viva nullibi in Ins. Maderensibus hodie extat.

Obs. Diu et sedulo scrutanti, ad amussim cum exemplaribus Britannicis recentibus exemplar vel optime conservatum fossile hoc pretiosissimum, mihi comparandi causa benignissime commissum, omnino congruere compertum est.

§ 32. LAMPADIA, Alb. MSS.

Mitra, Alb. 115.(Typ. *H. Webbia*, Lowe.)

T. imperf. lampadiformis depressa limbato-carinata tenuis granulata fulva subvirescens efusciata concolor. Anfr. 3-4 cito crescentes, ult. subtus convexo antice deflexo. Apert. ampla patula transverse ovalis auriformis extus ad carinam angulata, labris conniventibus disjunctis. Perist. tenue patulum reflexo-expansum a carina usque ad axin arcuatum. Axis tenuis simplex verticalis intrans, labro arcuatim junctus.

Obs. *Helicophantæ*, Beck, per *H. cornu giganteum*, Chemn., necnon *Corasiæ*, Alb. affinis. Nomen annuente cl. auctore mutandum, ob genus notissimum *Mitram*, Lam.

98. *H. WEBBIANA*, Prim. 44. t. 5. f. 10; Fér. Hist. i. 344. t. 28 A. f. 7, 8; Küst. M. et C. p. 306. no. 300. t. 52. f. 5, 6; Pf. i. 219.

Hab. in Portu S^{to}.

§ 33. IBERUS, Montf.

Crenea, sp. Alb. 78.(Typ. *H. Gualteriana*, L.)

T. imperf. vel obtecte perf. spiriplana subdiscoidea compresso-carinata subtus convexa solidiuscula subconcolor obscure fasciata fere

decolorata cretacea nuda plicato-striata granulata v. reticulata. Anfr. 4-5 cito crescentes plani, ult. carina fere limbata et per spiram ad suturam prominente, antice valde deflexo. Apert. lunato-securiformis s. transverse ovato-rhombea subquadrangularis ad carinam angulata, labris conniventibus callo laminave junctis. Perist. supra rectum simplex, infra carinam reflexiusculum, axin versus calloso-incrassatum, arcuatim axi junctum.

Obs. Testæ majusculæ formaque sculpturaque inter insigniores. Species certæ paucae: sc. *H. scabriuscula*, Desh., *H. Gualteriana*, L., et *H. Wollastoni*.

99. *H. WOLLASTONI*, Syn. Diagn. 9. no. 41. *T. omnino imperf. subdiscoideo-depressa utrinque convexiuscula medio-carinata solidiuscula eleganter obliquissime crebriplicata, plicis undulatis concinnis, tota subtilissime et confertissime arenulata, nebulatim castaneo-virescens, fusco obscure bifasciata, fauce rosea; spira convexo-depressa, apice prominente lavi roseo, sutura distinctissima inciso-impressa; anfr. 5 planiusculis tumidiusculis, ult. valde deflexo, carina compressa s. utrinque subæxarata exacte media ad suturam immersa nec per spiram continuato-prominente; apert. valde obliqua depressa transverse ovali subquadrato-rhombea, intus ad axin et extus ad carinam angulata, labris conniventibus lamina callosa junctis; perist. roseo continuo supra recto simplici acuto basi reflexiusculo axin versus incrassato dilatato-plano.*

Diam. maj. 18-20, min. 16-18, alt. 10-12 mill. Anfr. 5-5½.

H. Wollastoni, (Lowe) Küst. M. et C. t. 152. f. 15, 16 (opt.).

Hab. in Portu S^{to} recens fossilisque. Recens primus detexit el. Wollaston; cujus vigor conchologicus, ne dicam vis entomologica (vide "*Insecta Maderensia*, auctore T. V. Wollaston, Londini 1854," opus eruditionis elegantissimæ ut curæ laborisque stupendæ), summum sibi parat honorem.

Genus 3. BULIMUS, Scop.

§ 1. ELISMA, Leach.

Cochlicellus, (Beck) Alb. 178 (nec Fér.).

(Typ. *B. acutus*, Müll.)

T. anguste perf. conica v. conico-turrita jun. carinata, carina in adultis evanescente, pallida fusco fasciata v. strigato-maculata absque nitore. Anfr. 6-10, ult. in statu saltem jun. subcarinato v. obsolete angulato. Apert. rotundato-ovalis, spira multo brevior. Perist. simplex acutum ad perf. tenuiter reflexum.

100. *B. VENTROSUS*, Fér.; Prim. 62. no. 60; Pf. ii. 215. *B. ventricosus*, Drap. 78. t. 4. f. 31, 32; Rossm. vi. 41. f. 377. *Helix acuta*, Webb. et Berth. Syn. p. 13. no. 21 (nec Müll.).

Hab. in Madera vulg. in Portu S^{to} rara.

Duo adsunt varr.: ♂, ventricosior ovato-conica abbreviata cfas-

ciata; β , gracilior ovato-turrita fasciata, figuris Drap. supra cit. omnino consimilis. Obs. *B. solitarius*, Poir. (*Helix conoidea*, Drap.) verus in Madera nondum detectus est.

§ 2. RUMINA, Risso, Alb. 176.

(Typ. *B. decollatus*, L.)

T. subrimata cylindrico-elongata mox decollato-truncata lucidiuscula pallide rufo-cornea unicolor. Anfr. 4-6, primoribus 8-10 amissis. Apert. ovata, spira multo brevior. Perist. rectum simpliciusculum obtusum incrassatum, labris callo junctis.

101. *B. DECOLLATUS*, L. Prim. 62. no. 61; Drap. 76. t. 4. f. 27, 28; Webb et Berth. Syn. p. 14. no. 1; Phil. i. 139. t. 8. f. 14; Rossm. vi. p. 45. f. 384; Gray, Man. 5. t. 6. f. 60; Pf. ii. 152, 153. *Hab.* prope urbem Funchal: Maderæ.

Genus 4. ACHATINA, Lam.

DIV. *Lubricellæ* (GLANDINÆ, Schum. pars *Cionella*, Alb. 198, et AZECA, Leach, Alb. 199): testæ parvulæ læves lucido-nitentes pellucidæ unicolores pallide fulvo-corneæ: anfr. fere planati, sutura marginata, apice solidiuscula submamillari obtusa.

§ 1. ZUA, Leach.

Cionella, Jeffr. sp. Alb. 198.

(Typ. *A. lubrica*, Müll.)

T. turrita oblonga valde obtusa, spira producta, anfr. 5-6 convexiusculis, sutura distincta vix marginata. Apert. simpliciter obovata supra acuta spira multo brevior. Perist. marginatum opaco-incrassatum obtusum. Colum. subcallosa basi attenuata simplex (nec prominulo-truncata) cum labro subcontinua, truncatura v. emarginatione obsoletissimis vix ullis.

102. *A. MADERENSIS*. *T. minuscula pellucida splendide nitens angustato-oblonga graciliuscula ab anfr. ult. usque ad apicem subattenuata; anfr. 6 convexiusculis; apert. testæ latitudinem sc. $\frac{2}{5}$ — $\frac{4}{11}$ longitudinis æquante; colum. distincte arcuata basi obsoletissime truncata v. emarginata in labrum attenuata.*

Longit. $4\frac{3}{4}$ — $5\frac{3}{4}$, diam. $1\frac{3}{4}$ — $2\frac{1}{4}$ mill. Apert. $1\frac{3}{4}$ — $2\frac{1}{4}$, spira 3— $3\frac{1}{2}$ longa. Anfr. 6.

Bulimus maderensis, Syn. Diagn. 10. no. 42. *Helix C. lubrica*, var. Prim. 61. t. 6. f. 29 (nec Müll.). *Achatina lubrica*, γ . Pf. ii. 273.

Hab. in Madera vulg.

Obs. *T. corneo-umbrina*, animali foeta nigricans.

§ 2. FERUSSACIA, Risso.

Cionella, sp. Alb. 198.(Typ. *A. folliculus*, Gron.)

T. subturrita cylindraceo-elliptica v. *fusiformis pellucido-tenuis*.
Apert. angustato-ovata supra acuminata spira fere brevior.
Colum. basi obsoleta simpliciusecula (sc. *obsoletissime* v. *prominula* v. *torta* v. *truncata* v. *plicata* v. *emarginata*) in *labrum attenuata*.

103. *A. FOLLICULUS*, (Gron.) Phil. i. 141. t. 8. f. 27; Rossm. ix., x. 34. f. 656; Pf. ii. 283; Fér. Hist. ii. 170. t. 134. f. 28–30. *A. follicula*, Pot. et Mich. 127. no. 4. *Ferussacia Gronoviana*, Risso, Hist. iv. 80. t. 3. f. 27.

Test. juv. (abbreviato-ventricosæ), Phil. loc. cit. f. 27a; *Physa scaturiginum*, Drap. 56. t. 3. f. 14, 15; *Vediantius eristalius* (cristallus?), Risso, l. c. 82. t. 3. f. 24.

Hab. rara in apricis ad terram inter dumeta *Opuntia Tunæ*, Dill. prope urbem Funchal. Maderæ. Primus detexit T. S. Leacock.

Obs. In exempl. Lusitanicis, a cl. Höll olim lectis, colum. basi magis quam in Maderensibus prominula.

104. *A. GRACILIS*. *T. minuscula angustata turrita splendide nitens pallide fulvo-cornea* v. *hyalina fusiformis utrinque attenuata gracilis*; *spira producta gracili-attenuata subacuminata minus obtusa*, anfr. 7 æqualibus æquicrescentibus planatis; *apert. spiram subæquante* v. *illa distincte brevior*; *labro strictiusculo vix convexo-arcuato*; *colum. basi obsoleta vix ac ne vix prominula* v. *truncata in labrum attenuata*.

Var. α . *terebella*; major magis colorata fulvo-cornea subventricosuscula v. minus gracili-turrita, apert. spiram subæquante, labro subconvexo-arcuato.

Longit. $5-6\frac{2}{3}$, diam. $2-2\frac{1}{2}$ mill. Apert. $2\frac{1}{2}-3\frac{1}{2}$, spira $2\frac{1}{2}-3\frac{1}{4}$ longa. Anfr. $6\frac{1}{2}-7$.

A. Terebella, Syn. Diagn. 11. no. 47.

Hab. in monte Pico Branco, et in jugo orientali Insulam Superam (I. de Cima) versus Portûs S^u, Wollaston.

Var. β . *subula*; minor pallidior gracilior v. magis angustato-turrita, apert. spira subproductiore distincte brevior, labro strictiusculo.

Longit. $5-6$, diam. $1\frac{3}{4}-2$ mill. Apert. $2\frac{1}{4}-2\frac{1}{2}$, spira $2\frac{3}{4}-3\frac{1}{2}$ longa. Anfr. $6-7$.

Hab. in Ins. Supera (I. de Cima), necnon in cacumine extremo orientali Portûs S^u adjacente, huic adverso.

Var. γ . *vitrea*; pusilla hyalina ecolorata splendide nitens tenuissima abbreviato-subcylindrica obtusissima, apert. spiram subæquante.

Helix C. gracilis, Prim. 61. t. 6. f. 28. *A. gracilis*, Pf. ii. 284; Reeve, Conch. Icon. Achat. t. 22. f. 117 (aucta)!

Hab. in monte Pico Branco, et in jugo inter Pico de Facho et P. de Castello Portûs S^u. Etiam in Ins. Des. Majore, Wollaston.

Obs. 1. Status potius β juvenilis pusillus quam var. vera distincta videtur. Testæ nimirum 2—4½ mill. (nec ultra) longæ lævissimæ splendide nitentes hyalinæ v. ecolorato-vitreæ (emortuæ opaco-lacteæ) tenuissimæ fragillimæ abbreviato-subcylindricæ v. angustato-pupæformes obtusissimæ subturritæ, diam. pro ratione majore, spira breviuscula obesuscula (nec gracili-attenuata), anfr. 3–5 v. 5½ sæpe convexiusculis (nec omnino planis), apert. sæpe spiram subæquante vel paullum superante. Tales in jugo inter montes P. de Facho et P. de Castello, necnon in Ins. Des. Majore, a cl. Wollastono lectas, quales omnino in monte Pico Branco Portûs S^{ti} A.D. 1828 et 1832 in Prim. l. c. scriptas et depictas ipse legi, pullos v. statum juvenilem testarum plurium (var. β supra) nuperius ab amiciss. auctore in Insula Supera (I. de Cima) et in jugo adjacente adverso Portûs S^{ti}, Pico de Baxo versus, necnon in eodem ipso Pico Branco lectarum, exemplaribus permultis diu seduloque iterum iterumque scrutatis, potiusquam varietatem alteram distinctam constituentes, habemus. Testæ nempe omnes var. β , præter characteres in adultis notissimos, sc. testæ majoris coloratæ (pallide corneæ) firmioris acutioris v. gracilioris, aperturæque pro ratione brevioris, nihil constans distincti præbent. Sed vitandæ confusionis causa, testas sub γ . designatas in præsens pro varietate admisi.

Obs. 2. Ab *A. folliculo*, Gron., quacum a nonnullis confusa, species toto cælo distincta.

§ 3. ACICULA, Risso.

(Typ. *A. acicula*, Müll.)

T. aciculari-turrita subulata gracilis attenuata pellucido-tenuissima laxè spirata, sutura valde obliqua. Apert. angustato-ovata supra acuminata, spira distincte brevior. Perist. simplex tenuè acutum. Colum. laxè arcuata basi prominula truncata subtorta.

Obs. T. minutæ hyalino-tenuissimæ fragillimæ angustato-elongatæ. Facies *Eulimæ*.

105. *A. ACICULA* (*Buccinum*), Müll.; Rossm. x. p. 35. f. 658; Pf. ii. 274, 275. no. 90; Reeve, Conch. Icon. Achat. t. 20. f. 111; Forbes and Hanl. iv. 130. t. 128. f. 4. *Eulimus acicula*, (Brug.) Drap. 75. t. 4. f. 25, 26. *Helix C. acicula*, (Fér.) Prim. 59. no. 53.

Testa juven.: *A. acicula*, Nilss. Moll. Suec. p. 38; Lam. vi. 2. p. 183; Gray (Turton), Man. 191. t. vi. f. 71; "*A. acicula*, Turton," Phil. i. 142. t. 8. f. 26.

Hab. in Madera recens (sub lapidibus post pluvias) vulg. et in Ins. Des. Majore (testa angustissima gracillima parvula), Wollaston.

106. *A. EULIMA. T. linearis v. angustissime cylindracea gracillima subcurvata; spira elongata, sutura obliquissima distincte marginata; apert. abbreviato-obovata sursum acuminata deorsum integra latiuscule arcuato-rotundata, spira multo brevior, pariete ventrali medio uniplicata, plica transversa intrante*

distincta; lamina ventrali subcalloso-relevata cum colum. soluto-relevata subreflexa (vix truncata?) in labrum arcuato-attenuata continua.

Longit. (spira diffracto-decollata) 4, diam. $\frac{3}{4}$ mill. Apert. $1\frac{1}{3}$ v. $1\frac{1}{2}$, spira $2\frac{1}{2}$ longa. Anfr. superstites 4, (2 v. 3 forsan amissis).

Hab. in Portu S^{to} subfoss. rariss. Exemplar unicum speciei distinctissimæ ac elegantissimæ, apice spiræ diffracto-amisso, ceterum optime conservatum nitens et subcoloratum pallide corneum v. testaceum (an vere extincta?) in arena calcarea ad Zimbral d' Aréa detexit cl. Wollaston.

Obs. An vere sectionis? An potius *A. cylichnæ* affinis? Cf. etiam *Tornatellina*, (Beck) Pf. ii. 391. De truncatura columellæ, sicut de labro intus simplice v. plicis instructo, ob aperturam in exempl. unico pretiosissimo fragillimo arena fere clausam v. obstructam nihil certi affirmare ausim. Habitus quidem omnino *Ach. aciculæ*, Müll. Facies *Eulimæ distortæ*, Dh.

§ 4. HYPSELIA.

(Typ. *A. producta*.)

T. turrita subcylindræco-subulata solidiuscula subpellucida, sutura obliqua. Apert. angustato-elliptica, supra attenuato-acuminata v. postice oblique coarctato-producta spiræ subæquans. Perist. marginatum intus opaco-incrassatum. Colum. abbreviata basi prominula torta truncata.

Obs. *T. majusculæ* sat firmæ subopacæ forma *Mitræ* cujusdam elongatæ.

107. *A. PRODUCTA*, Syn. Diagn. 11. no. 48. *T. majuscula sat firma subpellucida turrita subcylindræco-subulata gracilis elongata, spira producta; anfr. 8 planis æquissimis, sutura subindistincta obliqua; apert. angustato-elliptica, supra attenuato-acuminata retroque oblique lineari-coarctato-producta, spiræ subæquali; perist. intus marginato s. opaco-ochraceo incrassato, labro medio arcuato-prominente; colum. abbreviata, basi abrupte prominula torta truncata.*

Longit. $8\frac{1}{2}$, diam. $2\frac{1}{2}$ mill. Apert. $4\frac{1}{8}$, spira $4\frac{3}{8}$ longa. Anfr. 8.

Hab. in Ins. Des. Austr. rariss.

§ 5. AMPHORELLA.

(Typ. *A. tornatellina*.)

T. majuscula abbreviata ovata v. ovato-fusiformis subopaco-solidiuscula, spira conoidea, anfr. planis, sutura parum impressa obsoleta. Apert. angustato-obovata, supra attenuato-acuminata v. postice oblique coarctato-producta, spira distincte longior. Perist. obtusum deorsum subexpansum. Colum. basi valde prominula abrupte torta subplicata truncata.

Obs. Paries apert. ventralis sursum plica lamellata lineari minuta subverticali, medio intus tuberculo obscuro obsolete munitus.

108. A. MITRIFORMIS, Syn. Diagn. 11. no. 49. *T. mitriformis elliptico-fusoides oblongiuscula pellucide fulvo-cornea; spira producta elongata latitudinem sæpissime excedente conoidea, sutura albo marginata; apert. angustato-elliptica supra acuminata retroque oblique coarctato-producta; perist. sinuato, labro medio arcuato-prominente subinflexo; colum. basi abrupte prominula torta truncata.*

Varr. duæ:

a. major gracilior.

Longit. 8—10 $\frac{1}{4}$, diam. 3 $\frac{1}{4}$ —4 mill. Apert. 4 $\frac{5}{4}$ —6, spira 3 $\frac{1}{2}$ —4 $\frac{1}{4}$ longa. Anfr. 6 $\frac{1}{2}$ —7 $\frac{1}{2}$.

Hab. in convallibus Maderæ rarior. Etiam in Ins. Des. Majore v. Media, Wollaston.

β. subminor paullo subventricosior, plica ventrali superiore magis expressa distinctius dentiformi.

Longit. 7—9, diam. 3—3 $\frac{3}{4}$ mill. Apert. 4—5 $\frac{1}{2}$, spira 3—4 $\frac{1}{4}$ longa. Anfr. 6—7.

Hab. in Ins. Des. Minore (Septentrionali). In Portu S^{ci}, A.D. 1828, exemplar unicum subdecoloratum lacteum in monte Pico Branco ipse legi.

109. A. TORNATELLINA (*Helix C.*), Prim. pp. 59, 60.

Magnitudine admodum variabilis. Distinguuntur varr. duæ:

a. major fulvo-castanea v. castaneo-umbrina.

Longit. 7—10, diam. 3 $\frac{1}{4}$ —4 $\frac{1}{2}$ mill. Apert. 4 $\frac{1}{4}$ —6 $\frac{1}{2}$, spira 3 v. 3 $\frac{1}{4}$ —4 longa. Anfr. 7—8.

A. tornatellina, Pf. ii. 277 (excl. var. *β.*).

Hab. recens in Maderæ sylvis convallibusque ubique; fossilisque ad Caniçal rara.

Obs. Exemplar insigne in Collect. ditissima lectissimaque Wollastoniana, magnitudine et pulchritudine superbiens, in sylvis convallis 'Boa Ventura,' legit cl. Insectorum Maderensium Indagator, cujus benevolentia scribendi copiam fecit. Hujusce

Longit. 11 $\frac{1}{2}$, diam. 5 $\frac{1}{2}$ mill. Apert. 7 $\frac{1}{2}$, spira 4 longa.

β. minor pusilla subpallidior subpaullulum minus ventricosa; apert. plica superiore magis abbreviato-expressa distinctius dentiformi, dente tuberculo medio ventrali subdistincto; colum. basi minus abrupte prominula.

Longit. 5—7, diam. 2 $\frac{1}{4}$ —3 $\frac{1}{4}$ mill. Apert. 3—4 $\frac{5}{4}$, spira 2—2 $\frac{1}{2}$ v. 2 $\frac{3}{4}$ longa. Anfr. 6—7.

Icon. Prim. l. c. t. 6. f. 23 (aucta) opt.

Hab. recens in Maderæ apricis præsertim maritimis. Ad Caniçal recensque fossilisque vulg. In monte Pico Branco Portûs S^{ci}, A.D. 1828, exempl. 3 recentia legi.

Obs. *A. mitriformi β*, accedit analoga, in illam subtransiens. Differt testa ventricosiore, spira brevior.

110. A. MELAMPOIDES (*Helix C.*), Prim. 60. no. 55. *T. auriculiformis ovato-oblonga, latitudine spiram excedente solida crassiuscula confertim obsoletissime et subtilissime spiralter striata, pallide ochraceo-lactescens v. eburnea subopaca; spira abbreviata*

conoidea; apert. obovata deorsum subeffusa supra acuminata vix retro producta, plica tuberculoque ventralibus obsoletissimis subnullis; perist. vix sinuato v. arcuato-prominente, strictiusculo deorsum expanso; colum. basi obsoletiuscula v. subprominula vix torta subobsolete s. obliquissime truncata.

Longit. $10-11\frac{3}{4}$, diam. $4\frac{1}{2}-5\frac{1}{4}$ mill. Apert. $6\frac{1}{2}-7\frac{1}{2}$, spira $4-4\frac{3}{4}$ longa. Anfr. 6—7.

Hab. in Ins. Supera (Ilheo de Cima) juxta Portum S^m, et in Portu S^{to} ipso (nec alibi) recens fossilisque.

Speciei distinctissimæ duæ adsunt varr. v. subvarr. :

α; pallide ochraceo-carnea.

Prim. l. c. t. 6. f. 24 (magnit. natur.); Reeve, Conch. Icon. Achat. t. 22. f. 122 (aucta)!

A. tornatellina, β. Pf. ii. 277.

β; tota lactea eburnea.

§ 6. FUSILLUS.

(Typ. *A. oryza*.)

T. abbreviata ovata v. ovato-fusiformis subopaco-solidiuscula, spira conoideo-exserta, anfr. planis, sutura obsoleta. Apert. angustato-obovata supra acuminata spiræ subæqualis (sc. illà sublongior raro subbrebior). Perist. simplex acutum. Colum. basi simpliciuscula intus subdilatata vix prominula obsolete et obliquissime truncata in labrum subattenuata.

111. *A. TUBERCULATA*, Syn. Diagn. 10. no. 46. *T. subornatelliformis abbreviato-ovata ventricosiuscula solidiuscula subopaca; spira conoideo-exserta, anfr. planis, sutura obsoleta. Apert. angustato-obovata supra acuminata spiram excedente, lamina ventrali obsolete calloso-plicata et tuberculata, sc. extus superne longitudinaliter 1-plicifera v. subvaricoso-callosa, intus medio obscure 1-2-tuberculata; colum. obsolete truncata intus subdilatata nec prominula vix torta, in labrum simplex (nec arcuato-sinuatum nec inflexum) subattenuata.*

Longit. $6\frac{1}{2}-7\frac{3}{4}$, diam. $3-3\frac{1}{2}$ mill. Apert. $3\frac{3}{4}-4\frac{1}{4}$, spira $3-3\frac{1}{2}$ v. $3\frac{3}{4}$ longa. Anfr. 7—8.

Hab. in Portu S^{to}.

Varr. vel subvarr. duæ: α, fusco cornea v. castanea; β, pallide ochraceo-lactea v. eburnea.

112. *A. ORYZA*, Syn. Diagn. 10. no. 45. *T. submitriformis elliptico-fusoidea subsolidiuscula subopaca; spira latitudinem paullo excedente, dimidio testæ subæquante, anfr. planatis; apert. obovata supra acuminata spiram paullo excedente, lamina ventrali plerumque simplici lævi, intus aliquando medio obsolete subtuberculato, extus superne rarissime subvaricoso-callosa; colum. vix v. obsoletissime truncata in labrum simplex attenuata.*

Longit. 5—6, diam. $2\frac{1}{4}-2\frac{1}{2}$ mill. Apert. $2\frac{3}{4}-3\frac{1}{2}$, spira $2\frac{1}{3}$ v. $2\frac{1}{2}-3\frac{1}{2}$ v. $3\frac{1}{4}$ longa. Anfr. 6—7.

A. triticea, Reeve, Conch. Icon. Achat. t. 22. f. 116 (aucta)!

A. triticea β , Pf. ii. 278.

Helix C. triticea β . *edentula*, Prim. 61. t. 6. f. 26 (aucta).

Hab. in Portu S^{to} recens fossilisque.

Varr. v. *subvarr.* ut in *A. tuberculata*.

113. *A. TRITICEA* (*Helix C.*), Prim. pp. 60, 61 (excl. var. β . f. 26).

T. mitriformis elliptico-fusoidea graciliuscula solidiuscula subopaca fulvo-cornea subfasciata, sutura albo-vittata marginata; spira subproducta latitudinemque dimidiumque testæ distincte excedente, anfr. planis; apert. obovata supra subacuminata spira paullo brevior subbiplicata, plica superiore conspicua transversa intrante ventrali medio, altera inferiore obscura obliqua interna columellari; colum. basi intus calloso-dilatata obsolete v. obliquissime late truncata, truncatura medio emarginata supra præsertim 1-plicata v. dentata, infra in labrum simplex subattenuata.

Longit. $5\frac{1}{2}$ — $6\frac{3}{4}$, diam. $2\frac{1}{2}$ — $2\frac{3}{4}$ mill. Apert. $2\frac{3}{4}$ — $3\frac{1}{4}$, spira 3— $3\frac{3}{4}$ longa. Anfr. 6—7.

Helix C. triticea, α . *biplicata*, Prim. l. c. p. 61. t. 6. f. 25 (aucta).

Ach. triticea α , Pf. ii. 278.

Hab. in Portu S^{to} recens fossilisque.

Obs. Animale nimis incaute e testa extracta, plica sup. magna ventralis facillime diffracta deest. Talia exempla ab *A. oryza* caute distinguenda.

§ 7. PYRGELLA.

(Typ. *A. Leacociana*.)

T. turrita oblonga obtusa tenuis pellucida subarctispira, spira producta, anfr. 5-6 convexiusculis, sutura subhorizontali distincta vix marginata. Apert. obovata supra acuminata, spira distincte brevior. Perist. simplex tenue acutum. Colum. abbreviata basi prominula torta truncata.

Obs. *T. parvulæ* pellucido-tenues.

114. *A. LEACOCIANA*, Syn. Diagn. 10. no. 43. *T. minuta tenuis pellucida splendide nitens turrito-oblonga graciliuscula e basi ad apicem subattenuata utrinque valde obtusa subarctispira; anfr. 6 convexiusculis, sutura distincta subhorizontali; apert. oblongo-obovata supra angustata acuminata spira distincte brevior, labro leviter sursum arcuato-prominente; colum. abbreviata basi abrupte prominula torta truncata.*

Longit. 4— $4\frac{1}{2}$, diam. $1\frac{1}{4}$ — $1\frac{1}{2}$ mill. Apert. $1\frac{3}{4}$ —2 longa. Anfr. 5—6.

Hab. in Madera rariss. (*T. S. Leacock*).

Obs. *T. facie Ach. maderensis* lucida corneo-umbrina, animali foeta nigricans.

§ 8. CYLICHNIDIA.

(Typ. *A. ovuliformis*.)

T. abbreviata elliptico-oblonga pupæformis utrinque obtusa subtenuiuscula paucispira; spira abbreviata obtusissima. Anfr. 4—5 convexiusculi, sutura distincta. Apert. angustato-obovata supra acuminata plicis coarctata subringens spira subbreavior. Colum. basi prominula subdilatata torta distincte et abrupte truncata.

115. *A. OVULIFORMIS* (*Helix C.*), Prim. 61. t. 6. f. 27 (aucta); Pf. ii. 278. no. 98; Reeve, Conch. Icon. Achat. t. 22. f. 119 (aucta)!

Hab. in Portu St^o.

116. *A. CYLICHNA*, Syn. Diagn. 10. no. 44. *T. cylindræo-oblonga anguste pupæformis (porcellano-cretacea nitens) utrinque obtusissima; spira exsertiuscula dimidio testæ subæquante, anfr. 4 subplanatis, sutura distincta subimmarginata; apert. spiram subexcedente angustato-obovata sublineari-acuminata plicis coarctata ringente subquinqueplicata; plicis 2 ventralibus, inf. medio maximo, sup. tuberculiformi parvo obscuro; 3 palatalibus, inf. maximo infra inf. ventralem, 2 sup. denticuliformibus minutis inter 2 ventrales conferruminantibus; colum. undique relevato-callosa, basi abruptissime arcuato valde prominente torta distinctissime truncata et emarginata.*

Longit. $2\frac{3}{4}$ —3, diam. $1-1\frac{1}{4}$ mill. Apert. $1\frac{1}{4}-1\frac{1}{3}$, spira $1\frac{1}{2}-1\frac{2}{3}$ longa. Anfr. 4.

Hab. fossilis ad Caniçal Maderæ.

Genus 5. PUPA, Drap.

§ 1. PALUDINELLA.

(Typ. *P. edentula*, Drap.)

T. cylindrico-ovata v. conico-ovata ventricosiuscula perf. v. umbil. nitens. Anfr. convexi lævigati obsolete substriati; sutura impressa. Apert. omnino edentula. Perist. simplex tenue acutum.

117. *P. LIMNÆANA*, Syn. Diagn. 11. no. 50. *T. distincte umbil. bulimiformis subpyramidato-ovata v. ovato-turrita subventricosa obtusa arcte substriata tenuis fragilis pellucida pallide corneo-flavescens; anfr. 5 convexo-tumidulis, ult. ventricoso deorsum producto, sutura impressa; apert. oblique ovali longiore quam lata $\frac{2}{5}-\frac{1}{2}$ longitudinis æquante omnino edentula; colum. lamina in umbilicum expanso-reflexa sinuata, medio convexiuscula; perist. angustissime expansiusculo subsimplici acuto, sursum subsinuato.*

Longit. $2\frac{1}{2}-2\frac{3}{4}$, diam. $1\frac{1}{2}-1\frac{3}{4}$ mill. Apert. $1-1\frac{1}{4}$ longa. Anfr. 5.

Hab. inter muscos in truncis Laurorum Maderæ rariss.

Obs. A *P. dilucida* (Ziegl.) Rossm. f. 326, cui proxima, præter magnitudinem, sat differt. Forma characteribusque magis ad *P. dilucidam*, Ziegl. affinis, magnitudine *P. edentulam*, Drap., refert.

118. *P. MICROSPORA*, Syn. Diagn. 11. no. 51. *T. minuta distincte perf. conico-ovata subtrochiformis v. turbinata abbreviata curta obtusissima obsolete substriata fusco-cornea; anfr. 5 convexo-tumidulis, ult. obtuse angulato basi abrupte truncato v. subplanato, sutura impressa; apert. depressa transverse semiovali latiore quam longa $\frac{1}{3}$ longitudinis æquante omnino edentula; colum. lamina reflexa; perist. undique æqualiter arcuato-rotundato simplici acuto.*

Longit. $1\frac{1}{4}$ — $1\frac{1}{2}$, diam. 1 — $1\frac{1}{4}$ mill. Apert. $\frac{1}{3}$ — $\frac{1}{2}$ longa. Anfr. 5.

Hab. in foliis culmisque paniculisque graminum, necnon in frondibus filicum, in excelsioribus herbis v. graminosis Maderæ rariss.

Obs. 1. Exempl. vix rite adulta; species vero cum nulla alia facile confundenda, forma *P. edentulæ*, Drap., simillima, sed duplo minor.

Obs. 2. *P. limnæana* et *microspora*, Maderenses, *P. dilucidæ*, Ziegl., et *edentulæ*, Drap., Europæis, par consimile constant.

§ 2. TRUNCATELLINA.

(Typ. *P. minutissima*, Hartm.)

T. cylindrica obtusissima rimato-perf. v. umbil. sericea absque nitore. Anfr. convexi distincte striati, sutura impressa. Apert. omnino edentula. Perist. subsimplex reflexiusculum.

119. *P. LINEARIS*, Syn. Diagn. 11. no. 52. *T. minuta distincte umbil. anguste elongato-cylindrica v. lineari-oblonga utrinque obtusissima, apice quasi decollato-truncata, eleganter et concinne crebristriata; anfr. 6–7 convexo-tumidulis, 4–5 ult. æqualibus, sutura impressa; apert. latiuscule rotundato-ovali paullo longiore quam lata vix $\frac{1}{4}$ longitudinis æquante; perist. simpliciusculo angustissime reflexiusculo, labro leviter sursum subsinuato.*

Longit. $1\frac{1}{2}$ — 2 , diam. $\frac{2}{3}$ — $\frac{3}{4}$ mill. Apert. $\frac{1}{3}$ — $\frac{1}{2}$ mill. longa. Anfr. 6–7.

Hab. fossilis rarior ad Caniçal Maderæ.

Obs. *P. minutissimæ*, Hartm., proxima, nec forsan vere distincta.

§ 3. GASTRODON.

(Typ. *P. umbilicata*, Drap.)

T. cylindrica v. ovato-cylindrica umbil. nitens. Anfr. convexi lævigati obsolete substriati. Apert. subuniplicata, plica ventrali distincta fere unica, columellaribus (1 v. 2) obsoletis subnullis, palatalibus s. labri plane nullis. Perist. marginato-reflexum superne subsinuatum.

120. *P. FANALENSIS*, Syn. Diagn. 11. no. 53. *T. pupiformis aperte umbil. tenuis ovato-cylindrica abbreviata basi rotundata splendide nitens lævis arcte et tenuiter substriata fusco-cornea subfasciata, sæpe decorticata dealbata; anfr. 5—6 convexis subtumidis, sutura impressa; apert. basi late rotundata exangulata, carina umbilicali obsoleta; plica ventrali distincta, columellari subnulla; labro marginato plano-reflexo, denticulo superne cum sinu indentato obsoletissimo subnullo.*

Long. $2\frac{1}{2}$ —3, diam. $1\frac{1}{2}$ — $1\frac{3}{4}$ mill. Anfr. $5\frac{1}{2}$ —6.

Hab. in truncis Laurorum Maderæ, rara.

121. *P. ANCONOSTOMA*, α et β , Prim. 62. t. 6. f. 30 (quoad formam male); Pf. ii. 314.

Hab. in Madera vulg.

§ 4. LEIOSTYLA.

(Typ. *P. anglica*, Fér.)

T. umbil. cylindrica v. ovato-cylindrica, nitens. Anfr. planati lævigati obsolete substriati. Apert. multiplicosa fere ringens. Plicæ 2 ventrales: exterior (plica angulari, Pf.) maxima, cum denticulo superne labri sinum pro orificio respirationis formante: 1—2 columellares: 1—3 et ultra palatales intra labrum subinternæ; denticulo marginali labri supra adjecto. Perist. marginato-reflexum superne sinuatum.

122. *P. CHEILOGONA*, Prim. 63. t. 6. f. 31; Pf. ii. 327, 328.

Hab. in frondibus filicum (*Allantodia axillaris*, R. Br., *Pteridisque argutæ*, Vahl.) in adytis montium humidis obscuris umbrosis Maderæ, rariss.

123. *P. VINCTA*, Syn. Diagn. 12. no. 54. *T. oblongo-ovata subabbreviata obesiüscula apice obtusa splendide nitens lævis obsoletissime substriata late colorato-fasciata; anfr. 6 subplanatis, sutura subimpressa; apert. rotundato-ovali haud ringente quadruplicata, plica 5^{ta} rudimentali inconspicua punctiformi intus ad basin aperturæ adjecta; plicis 4 magnis, 2 ventralibus, 1 columellari, 1 palatali; ventrali interiore minore, plicæ columellari unicæ æquali; labro reflexo subsinuato, intus in medio uniplicato, denticulo superne obsoleto, sinu respir. patulo effuso.*

Long. 3 — $3\frac{1}{4}$, diam. 2 — $2\frac{1}{8}$ mill. Anfr. 6.

Hab. in rupibus irriguis inter Marchantiam polymorpham, L. et gramina ad oram Septentrionalem Maderæ, rariss.

124. *P. IRRIGUA*, Syn. Diagn. 12. no. 55. *T. subovato-oblonga subcylindrica apice obtusissima splendide nitens lævis obsolete substriata fusca obscure fasciata, sæpe decorticata et tenuiter lineata; anfr. 7 planatis transverse obsolete striatis, sutura minus impressa; apert. subquadrangulari ringente sinuata quinqueplicata, plicis aliis duabus rudimentalibus in labro aliquando adjectis; plicis 5 magnis, 2 ventralibus, 2 columellaribus, 1 pa-*

latali; ventrali exteriori maxima extrorsum deflexa, interiore minore columellari inferiori æquali; columellari superiore minore distincto; labro reflexo subsinuato intus in medio uniplicato, plica sexta et septima rudimentali punctiformi supra et infra aliquando adjecta; denticulo sinuque respir. completo distinctis.

Long. 4, diam. $2\frac{1}{4}$ mill. Anfr. 7.

Hab. in rupibus Convallium Maderæ irriguis inter gramina (*Deschampsia argentea*, Lowe) muscosque, rariss.

125. *P. LAURINEA*, Syn. Diagn. 12. no. 56. *T. umbilicata obso-cylindrica vel abbreviato-obesiuscula curta alveariformis, apice abrupte contracta subacutiuscula, tota splendide nitens lævis obsoletissime substriata corneo-fulva subolivaceo-nigrescens spadiceo distincte bifasciata; anfr. 7 planatis, sutura distincta; apert. subtrifoliato-auriformi, ad denticulum constrictiuscula, aperte quinqueplicata, plicis subcoloratis remotiusculis separat. 4 majoribus, 1 tantum (ventrali ext.) prominente; 2 ventralibus, 1 columellari, 2 palatalibus; duabus ventral. inæqualibus, exteriori maxima, interiore cum plica columellari minore subinconspicua immersa; labro intus biplicato, plica sup. majuscula, inf. minuta punctiformi ad imum aperturæ immersa; perist. marginato-reflexo incrassato carneo v. fusco-purpureo ad denticulum distincte indentato v. sinuato-contracto; sinu respiratorio subincompleto deorsum subaperto, denticulo labri distincto intus prominente.*

Magnit. fere *P. sphinctostomatis*.

Var. a; testa subobesiore intensius colorata, plica columellari ventralique interiore subminoribus magis internis inconspicuis, cum peristomate intensius coloratis.

Hab. in Convalle Boa Ventura ad truncos Laurorum.

Var. β; plica columellari ventralique interiore submajoribus magis conspicuis.

Hab. in muscis ad truncos Laurorum (*L. canariensis*, L.) in Convalle Frigida (Rib. Frio) et ad S. Antonio da Serra.

Obs. Per *P. sphinctostoma* β, quacum in Rib. Frio commixta vivit, in *P. sphinctostoma* α fere transit. Variat nempe plus minus cylindrica; semper vero pro longitudine latior quam *P. sphinctostoma*.

126. *P. SPHINCTOSTOMA*, Prim. p. 63. no. 64; Pf. ii. 335. no. 86.

Var. α, rupestris; spira plerumque distinctius striata. Prim. l. c. t. 6. f. 32.

Hab. sub foliis *Sempervivi tabulæformis*, Haw. in rupibus maritimis atque convallium Maderæ.

Var. β, arborea; testa læviore nitidiore obsoletius striatula.

Hab. inter muscos in truncis Laurorum in convallibus Maderæ.

Obs. Species variabilis, plicis columellaribus 1-3, labri (palatalibus 1-3, denticulis 1-2) 2-5; sed testa cylindrica, apertura ringente ovali, plicis 3 internis magnis æqualibus, cum unica opposita intermedia palatali magna labri internexantibus v. conferruminatis æquiprominentibus distinguenda.

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127. *P. LÆVIGATA*, Syn. Diagn. 12. no. 57. *T. pyramidato-cylindrica sursum sensim subattenuata splendide nitens lævis; spira substriata; apert. subeffusa patula haud coarctato-plicata; plicis quatuor remotis, duarum ventralium exteriori magna prominente, interiore parva immersa inconspicua plicæ unicæ columellari æquali; labro intus uniplicato.*

Long. $3\frac{1}{2}$ — $4\frac{1}{4}$, diam. $1\frac{1}{2}$ — $1\frac{2}{3}$ mill. Anfr. 7—8.

Hab. rariss. cum *P. sphinctostomate* a, cujus forsitan modo var. vel status tantum degener, in rupibus Convallis S^{te} Lucie Maderæ.

Differt a *P. sphinctostomate* æque ac a *P. laurinea*, forma ab anfractu penultimo usque ad apicem sensim subattenuata.

128. *P. RECTA*, Syn. Diagn. 12. no. 58. *T. cylindrica elongata truncata sericeo-nitens lævigata obsolete substriata cornea, fusco distincte fasciata; anfr. 8 planatis transverse obsolete striatis, 5 ult. æqualibus, sutura subobsoleta; apert. subquadrangulari ovali subeffusa patula haud ringente quinqueplicata, plicis 5 (rariss. 6) remotis, quatuor conspicuis valde inæqualibus; 2 ventralibus, 1 (rariss. 2, sup. obsoleta) columellari, 2 (rariss. 1) palatalibus; 2 ventral. approximatis, exteriori magna, interiore minore plicæ columellari sæpissime unicæ remotiusculæ subæquali; labro reflexo-marginato æquali vix sursum sinuato, intus biplicato, plica superiore plicæ columellari subæquali, inferiore rudimentali punctiformi v. obsoleta; denticulo parum distincto, sinu respir. subincompleto apertiusculo.*

Long. $4\frac{1}{2}$ —5, diam. $1\frac{1}{2}$ —2 mill. Anfr. 8.

Hab. sub foliis *Sempervivi tabulæformis*, Haw. in rupibus maritimis ad oram Septentrionalem Maderæ.

129. *P. MACILENTA*, Syn. Diagn. 13. no. 59. *T. cylindrica elongata truncata sericeo-nitens distincte substriata pallida cornea, fusco distincte fasciata; anfr. 8 planatis transverse striatis, 5 ult. æqualibus, sutura subobsoleta; apert. subquadrangulari ovali subeffusa patula haud ringente quinqueplicata, plicis remotis, 4 conspicuis, 2 ventralibus, 1 columellari, 2 (rariss. 1) palatalibus; 3 internis (sc. 2 ventral. et 1 colum.) æqualibus æquiprominentibus æquidistantibus parallelis; labro reflexo-marginato æquali sursum vix sinuato intus subtriplicato, plica superiore subinconspicua immersa intrante, inf. rudimentali punctiformi obsoleta v. nulla; denticulo distinctiusculo, sinu respir. subcompleto.*

Long. $3\frac{3}{4}$ — $4\frac{1}{4}$, diam. 1— $1\frac{1}{2}$ mill. Anfr. 8.

P. recta β, MSS. olim.

Hab. in Ins. Des. Majore, Wollaston; etiam in Madera, Wollaston et Leacock, rariss.

§ 5. CRATICULA.

Orcula, Held?(Typ. *P. substriata*, Jeffr.)

Testa perf. v. umbil. cylindrica sericea absque nitore. Anfr. convexi distincte striati v. costellati. Apert. multiplicosa: plicis ut in Leiostylis. Umbil. parvus angustatus.

130. *P. FUSCA*, Syn. Diagn. 13. no. 60. *T. cylindrica subelongata truncata striata fusca obscure fasciata; anfr. 7½ convexis transverse crebristriatis, sutura impressa; apert. subrotundata sexplicata haud ringente, plicis confertis conferruminatis s. alternantibus subimmersis fuscis, 2 ventralibus, 2 columellaribus, 2 palatalibus; plica interiore ventrali, inferiore columellari, et superiore palatali subæqualibus; columellari superiore palatalique inferiore rudimentalibus, aliquando obsoletis; labro reflexo-marginato haud sinuato, denticulo superne distincto intus prominente, sinu respir. completo.*

Long. 3—4, diam. 1½ mill. Anfr. 7—7½.

Hab. sub folia *Sempervivi tabulæformis*, Haw., ad oram Septentrionalem Maderæ.

131. *P. MILLEGRANA*, Syn. Diagn. 13. no. 61. *T. perpusilla cylindrica truncata striata fusca obscure fasciata; anfr. 6 convexis, striis validiusculis æquidistantibus subremotiusculis, sutura impressa; apert. ovali septemplicata haud ringente, plicis tubercularibus confertis, palatalibus internis oppositis (nec conferruminatis) faucem fere claudentibus; 2 ventralibus magnis æqualibus, 2 columellaribus, superiore minore immersa inconspicua; 3 palatalibus, superiore parva distincta, intermedia crassa, inferiore parva immersa obscura; labro reflexo continuo, denticulo distincto.*

Long. 2, diam. 1 mill. Anfr. 6.

Hab. in rupibus præsertim maritimis Maderæ; etiam in Ins. Des. Majore, Wollaston.

132. *P. FERRARIA*, Syn. Diagn. 13. no. 62. *T. cylindrica subelongata truncata crebriusculè striata fusco-nigricans, anfr. superne fascià distincta angusta pallida; anfr. 7 convexis, striis transversis rectiusculis capillaribus distinctis, sutura impressa; apert. ovali patula subeffusa 4-plicata; plicis lamellaribus inæqualibus remotis inconspicuis, 2 ventralibus, 1 columellari, 1 palatali; columellari 2^{da} superiore nulla v. omnino obsoleta, palatalibusque 2^{da} superiore et 3^a inferiore vel minutis rudimentalibus vel plerumque obsoletis nullis; ventrali interna parva immersa; columellari palatalique media æqualibus; labro subreflexo continuo vix sinuato, denticulo obsoleto, sinuque respir. effuso aperto indistincto.*

Long. 3½—4, diam. 1½ mill. Anfr. 7.

Hab. in Portu S^{to}, Wollaston.

133. *P. MONTICOLA*, Prim. 63. t. 6. f. 33; Pf. ii. 335.

Hab. in Portu S^o.

Obs. Differt a *P. ferraria* testa minore abbreviata pallida fusco fasciata, anfr. 6 costulato-striatis s. striis validioribus remotioribus verticalibus flexuosis, plicisque aperturæ validioribus. *P. monticola* ad *P. calathiscum* ut *P. ferraria* ad *P. fuscum* vergit.

134. *P. CALATHISCUS*, Prim. 64. t. 6. f. 34; Pf. ii. 344. no. 104.

Hab. in Portu S^o.

§ 6. SCARABELLA.

(Typ. *P. cassida*, Lowe.)

Testa subimperf. ovoidea utrinque subacuta solida figulina s. marmoreo-nitens. Anfr. planati sulcato-striati. Apert. auriformis antice producta multiplicosa ringens. Labrum callo intus in-crassatum. Perforatio angustissima vix ulla.

135. *P. CASSIDA*, Prim. 64. t. 6. f. 35 (male); Pf. ii. 344. no. 103. Küst. M. et C. p. 135. no. 142. t. 17. f. 15-17.

Hab. in Madera: recens rariss. nuperrime paullo abundantius a cl. Wollaston detecta. Fossilis sat frequens.

Obs. Species eximia notabilis, *Scarabum* vel *Tomogerem* referens. Testa recens pulcherrime brunneo tessellato-marmorata, nitore porcellano-figulino.

§ 7. ALVEARELLA.

(Typ. *P. cassidula*.)

Testa umbil. subovata obesiuscula curta subnitens. Anfr. planati distincte striati. Apert. multiplicosa, plicis fere ut in Leio-stylis. Umbil. largus infundibuliformis.

136. *P. CASSIDULA*, Syn. Diagn. 13. no. 63. *T. subovata curta obesiuscula utrinque obtusa apice contractiuscula substriata nitens tenuis subpellucida pallide flavescenti-cornea obscure fasciata; anfr. 7-8 planatis, superioribus arcte striatis, ult. lævi antice sulco pone labrum subspirali leviter exarato, sutura distincta; apert. semiovali subauriculata v. oblique deorsum producta ringente septemPLICATA, plicis 2 ventralibus, 2 columellaribus, 3 palatalibus; ventrali exteriori, columellari inferiore, mediaque palatali intus late dilatato-lamellata, conspiciuis magnis; labro tenui reflexo superne ad denticulum sub-sinuato, extus pallide ochraceo-opaco, denticulo valde distincto intus prominente sinuque respir. completo.*

Long. 3, diam. 2 mill. Anfr. 7-8.

Hab. in Madera rariss., Wollaston.

137. *P. CONCINNA*, Syn. Diagn. 13. no. 64. *T. subcylindrica curta subobesiuscula utrinque obtusa striata sericeo-subnitens spadiceo-fusca v. nigro-castanea fasciata, apice sæpe albo-de-*

corticata; anfr. 7-8 planatis arcte striatis, striis capillaribus flexuosis conspicuis subvalidis, sutura distincta; apert. haud ringente quinqueplicata, plicis 3 validis prominentibus, 2 inconspicuis parvis; 2 ventralibus magnis extrorsum deflexis, exteriore denticulum labri fere attingente; 1 columellari, interiori ventrali subæquante; 2 palatalibus immersis, inferiore ad basin columellæ punctiformi sæpe obsoleta; labro reflexo, denticulo superne valde distincto intus prominente, alio supra ad angulum sæpe adjecto, sinu respir. (ut in *P. sphinctostomate*) completo.

Longit. 3—3½, diam. 1¾—2 mill. Anfr. 7—8.

Hab. in Madera rariss. Primus inv. cl. Wollaston. *P. laurineæ* analoga, forsan affinis, simillima.

138. *P. ABBREVIATA*, Syn. Diagn. 13, 14. no. 65. *T. pusilla solidiuscula compacta curta abbreviato-oblonga, latitudine ¾ longitudinis æquante, utrinque obtusissima crebri-costellato-striata subnitens*; anfr. 6-7 planatis arcte et æqualiter costellato-striatis, ult. antice sulco subspirali leviter exarato, striis validiusculis distinctis obliquis sæpe flexuosis, sutura distincta; apert. semi-ovali subtriangulari 4-plicata, plicis 2 ventralibus obliquis parallelis columellarique unica majusculis conspicuis, 1 palatali immersa obscura; labro latiuscule reflexo sursum (ad denticulum) inflexo sinuato, denticulo distincto intus prominente, sinu respir. completo.

Longit. 2—2½, diam. 1¼—1½ mill. Anfr. 6—7.

Hab. fossilis ad Caniçal Maderæ rariss. Primus inv. Wollaston.

139. *P. GIBBA*, Syn. Diagn. 14. no. 66. *T. pusilla solidiuscula compacta curta abbreviato-oblonga, latitudine ¾ longitudinis æquante, gibba utrinque obtusissima distincte costata nitens castaneo-fusca pallido fasciata*; anfr. 6 planatis, ult. antice ascendente subdistorto, costis remotiusculis æquidistantibus verticalibus transversis, sutura subobsoleta; apert. subtrilobato-auriformi ringente plicis 5, 3 internis prominentibus conspicuis magnis, 2 ventralibus, interiore lamellata maxima latissima oblique valde prominula, exteriore crassa antice abrupte dilatata subbifida v. emarginata auriculato-lobata extrorsum valde deflexa; columellari 1 magna crassa horizontali, palatalibus 2 inconspicuis immersis; labro incrassato-reflexo sursum valde inflexo-sinuato, denticulo distincto valde prominente crasso, sinu respir. distinctissimo completo.

Longit. 1¾—2, diam. 1¼—1½ mill. Anfr. 6.

Hab. in Madera; fossilis ad Caniçal rariss. Exempla recentia duo, alterutrum cum animali jam vivente, in Convalle S^æ Lucie detexit oculatiss. Wollastonus.

§ 8. MASTULA.

(Typ. *P. lamellosa*.)

T. perf. abbreviato-cylindrica v. mammiformis subturbinata submembranacea absque nitore. Anfr. convexi lamellato-striati v.

membranaceo-costati, costellis sæpe spinelloso-productis. Apert. semi-ovalis subdepressa, plicis paucis distinctis.

140. *P. LAMELLOSA*, Syn. Diagn. 14. no. 67. *T. pusilla abbreviato-cylindrica v. mammiformis curta subturbinata utrinque obtusissima tenuis submembranacea fusca efasciata lamellato-striata; anfr. 5 convexis tumidulis, lamellis medio foliaceo-dilatatis v. lacerato-aculeatis membranaceis æquidistantibus remotiusculis obliquis transversis costatis, sutura impressa profunda; apert. semi-ovali depressa largiore quam longa triplicifera; plica ventrali unica maxima, colum. unica minore infera, palatali huic opposita immersa obsoleta obscura inconspicua; labro expansiusculo vix subsinuato, denticulo minusculo obsoleto sinuque respir. aperto indistincto.*

Longit. 2, diam. $1\frac{3}{4}$ mill. Anfr. 5.

Hab. fossilis ad Caniçal Maderæ rariss. Exempla quoque recentia paucissima inv. primi Wollaston, Armitage, deinde Leacock. Habitus *Helicis aculeata*, Müll.

§ 9. STAURODON.

(Typ. *P. pygmæa*, Drap.)

T. pusilla v. minuta perf. v. umbil. tumidulo-cylindrica obesiuscula lævigata v. obsoletissime striolata nitens. Anfr. pauci convexi, sutura impressa. Apert. fere circularis 3-5 plicata, plicis sæpe 4 cruciatis. Perist. subcontinuum æquale; denticulo sinuque respir. distinctis nullis.

141. *P. SAXICOLA*, Syn. Diagn. 14. no. 68. *T. minuta rimato-umbil. subovoideo-cylindræa v. subobesiusculo-oblonga utrinque subattenuata obtusa fulvo-fusca efasciata subopaca solidiuscula nitidula lævigata sc. obsoletissime striolata; anfr. 5 convexis minutissime (sub lente) confertim oblique striolatis, ult. omnino simplice (nec "antice tumido-suberistato," Pf. v. pone labrum callo pallido costato-subvaricoso), sutura distincta impressa; apert. æqualiter rotundato-ovali 5-dentata; dentibus 4 immersis cruciatis, 1 ventrali majore, 1 columellari, 2 palatalibus, 3 ult. æqualibus; 5^{to} tuberculiformi distincto extus superne ad angulum labri adjecto; perist. undique continuo æquali (nec sinuato) subincrassato expansiusculo intus ad ventrem calloso-relevato.*

Longit. $1\frac{1}{2}$ — $1\frac{3}{4}$ vix 2, diam. $\frac{3}{4}$ — $\frac{7}{8}$ vix 1 mill. Anfr. $4\frac{1}{2}$ — $5\frac{1}{2}$.

Hab. in Madera recens sub lapidibus; fossilis ad Caniçal rariss.

142. *P. SEMINULUM*, Syn. Diagn. 14. no. 69. *T. minutissima rimato-umbil. ovoideo-cylindræa v. obesiusculo-oblonga subventricosiuscula utrinque subattenuata apice obtusissima fulvo-fusca efasciata subopaca solidiuscula nitidula lævigata sc. obsoletissime striolata; anfr. $4\frac{1}{2}$ tumidulo-convexis minutissime (sub lente) confertim oblique striolatis, ult. omnino simplice (nec antice varicoso), sutura profunda; apert. subquadriden-*

tata; dentibus 3 immersis (4^{to} palatali superiore minuto obsoleto saepe deficiente) in triangulum dispositis, 1 ventrali majore, 1 columellari, 1 palatali, 2 ult. subæqualibus; 4^{to} tuberculi-formi distincto extus superne ad angulum labri adjecto; perist. continuo subincrassato expansiusculo, intus ad ventrem calloso-relevato, extus sc. labro subangulari strictiusculo inflexo-sinuato, denticulo superne intus distinctiusculo.

Longit. $1\frac{1}{4}$ — $1\frac{1}{3}$, diam. $\frac{2}{3}$ mill. Anfr. $4\frac{1}{2}$.

Hab. recens in Madera rariss., T. S. Leacock.

Obs. Species subdubia, ulterius investiganda, quum exempla pauciora, eaque semel tantum, examinare contigit. *Pupæ saxicolæ* forsan mera var. statusve pusillus.

Genus 6. BALEA, Pridx.

143. *B. PERVERSA*, (L.) Flem. Brit. Anim. 271. *Balæa perversa*, Gray, Man. 207. t. 6. f. 70. *Pupa fragilis*, Drap. 68. t. 4. f. 4; Nilss. p. 48; Lam. vi. 2. p. 110. no. 24. *Balea fragilis*, Rossm. x. 24. f. 636; Forbes and Hanl. iv. 114. t. 128. f. 8, 9.

Hab. recens in Portu S^{to} rariss., Wollaston.

Obs. Neque in Madera neque in Ins. Desertis adhuc obvenit. Testæ exemplis Britannicis graciliores, ad amussim ut in figuris Drap. et Rossm. citatis delineatæ: cetera omnino consimiles.

Genus 7. CLAUSILIA, Drap.

144. *C. CRISPA*, Prim. 65. t. 6. f. 36 (aucta; e specim. manco decolorato nec rite adulto, perist. incompleto); Pf. ii. 484; Küst. M. et C. p. 118. no. 113. t. 13. f. 5-7 (opt.).

Hab. in truncis Laurorum Maderæ vulg., necnon fossilis ad Caniçal rara.

Obs. Sp. inter nobiliores generis eximia pulcherrima, læte picta s. albo (recens capta luteo) strigato-marmorata v. lentiginoso-maculata.

145. *C. DELTOSTOMA*, Prim. 65. no. 69.

Var. α. raricosta; T. solidiuscula ventricosiuscula testacea v. flavo-subrufescens pallida; anfr. 10-11 $\frac{3}{4}$ vix 12 convexiusculis clathrato-costellatis, costellis rariusculis subremotis distinctis, sutura distincta impressa.

Subv. 1. Porto-sanctina; eximie clathrata costellata, costellis sat remotis grossiusculis.

Cl. deltostoma α, Prim. l. c. t. 6. f. 37 (aucta); Pf. ii. 410. *Cl. Loweï*, Alb. in litt. 1852; Küst. M. et C. t. 19. f. 23-26.

Hab. in Portu S^{to}, recens vulg., foss. (Wollaston) rarior.

Subv. 2. maritima; subelathrato-costellata, costellis subapproximantibus tenuioribus.

Prim. l. c. t. 6. f. 38 (aucta; errore pro var β. e specimine Caniçalensi delineata!).

Hab. in Maderæ aridioribus maritimis, e. g. in Rancho prope Cani. de Lobos, ad Piedadem prope Caniçal, Paul do Mar, &c.

Obs. Var. α . Subv. 1 per Subv. 2 in β , Subv. 1 per formas intermediarias innumeras transit.

Var. β . *crebristriata*; T. tenuiuscula graciliuscula fusco-cornea intensius colorata subcinereo-sericina; anfr. 8-11 planatis crebri-striatis, striis confertis approximatis tenuibus albidis, interstitiis colorato-fuscis, sutura subobsoleta minus impressa.

Cl. deltostoma β , Prim. l. c. (sed non f. 38, vide supra); Pf. l. c.

Subv. 1. *normalis*; gracilis subelongata.

Hab. in Madera Insulisque Desertis vulgatiss. ubique: polymorpha. In submaritimis (e. g. in Rancho Insulisque Desertis) in α , subv. 2 transiens: in editioribus aëre humidior montanis tenuior fere minor, striis creberrimis tenuissimis.

Subv. 2. *depauperata*; subabbreviata pusilla, ad *Cl. exigua* accedens.

Cl. deltostoma, Küst. M. et C. p. 92. no. 87. t. 10. f. 21-24?

Hab. in collibus apricis submaritimis, 1500 fere ped. altis, editioribusque montanis Maderæ.

Obs. Interstitia costellarum v. striarum longitudinalium æque et in α et β , plerumque striolis spirælibus confertis interruptis obsolete crenato-decussata. Striæ vero aliquando, præsertim in α 1, omnino evanescent.

146. C. EXIGUA, Prim. 66. no. 70. t. 6. f. 39 (aucta); Pf. ii. 485; Küst. M. et C. 91. no. 85. t. 10. f. 12-15.

Hab. in rupibus Maderæ.

FAMILY IV. CYCLOSTOMATIDÆ.

GENUS CRASPEDOPOMA, Pf.

(*Cyclostoma*, § *Hygrobium*, Syn. Diagn.)

(Typ. *C. lucidum*.)

"*T. subturbinata rimata*, anfr. ult. antice subcoarctato. Perist. continuum simplex, prominentiam internam operculi excipiens. Operc. corneum solidum arcuissime spiratum, nucleo centrali pagina externa plana, interna prominentia circulari in anfr. penult. munita, medio profunde concava." Pf.

Obs. T. lævigatæ lucido-nitentes.

147. C. LUCIDUM (*Cyclostoma*), Prim. 66. no. 71. t. 6. f. 40 (aucta); Küst. M. et C. t. 13. f. 26, 27; Pf. Mon. Pneum. p. 51. no. 88.

Hab. in umbrosis obscuris convallium irriguisque Maderæ ubique recens: etiam fossilis ad Caniçal: vulgatiss. In Portu S^o tantum fossilis rariss. In Desertis omnino deest.

148. *C. LYONNETIANUM* (Cyclost.), Syn. Diagn. 15. no. 70;
Pf. Mon. Pneum. p. 52. no. 89. *T. trochoidea exilissime spir-
raliter striata; anfr. ult. angulato-carinato.*
Diam. $3-3\frac{1}{2}$, alt. $4-4\frac{1}{2}$. Anfr. $5-5\frac{3}{4}$.

Hab. in convallibus Maderæ recens, fossilisque ad Caniçal rara,
Wollaston.

Division B. AMPHIBIÆ (Littorales).

Family V. TRUNCATELLIDÆ.

(Operculatæ. Tentacula 2, oculis ad basin externam. Pes simplex.)

Genus 1. TRUNCATELLA, Risso.

(Typ. *T. truncatula*, Drap.)

149. *T. TRUNCATULA*, Drap.; *T. truncatula* β . *costulata*, Zool.
Journ. v. 302. t. xiii. f. 13-18. *T. costulata*, Risso, Hist. iv. 125.
no. 301. f. 57. *Cyclostoma truncatulum* α , Drap. 40. no. 17. t. 1.
f. 28, 29; Lam. vi. 2. p. 149. no. 28. *Rissoa truncata*, var. *major*,
Phil. i. 151. Testa juv. *Paludina Desnoyersii*, Payraud. Catal. 116.
no. 245. t. 5. f. 21, 22?

Hab. sub lapidibus magnis rotundatis, æstu maris quotidie sub-
mersis, siccisque deinde relictis, in littore septentrionali Promont. S^u
Laurentii Maderæ.

Obs. Experimentis in Zool. Journ. v. pp. 280-305 relatis non ob-
stantibus, animalia *Truncatellæ Auriculæque* (Conovuli) *Pedipe-
disque* potius pulmonifera quam branchifera esse, perpersis diu un-
dique argumentis, probabilius videtur.

Family VI. AURICULIDÆ.

(Inoperculatæ. Tentac. 2, oculis ad basin internam.)

Genus 1. AURICULA, Lam. (Pes simplex.)

(Typ. *A. Midæ* (Argenv.) Lam.)

§ 1. *T. ovata* v. *oblonga*, spira exserta.

150. *A. ÆQUALIS* (*Melampus*), Zool. Journ. v. 288. no. 1. t. xiii.
f. 1-5.

Varr. α , castanea, obscure subfasciata; β , tota alba.

Hab. infra lapides littoris Septentr. Maderæ.

151. *A. GRACILIS* (*Melampus*), Zool. Journ. l. c. no. 2.

Hab. in fissuris rupium littoris Meridionalis Maderæ.

Obs. Prioris forsitan mera var. v. status.

§ 2. *T. conoidea*, spira brevissima.

152. *A. EXIGUA* (*Melampus*), Zool. Journ. l. c. 291. t. xiii. f. 6, 7.

Hab. infra lapides in littore Septentr. Maderæ.

Genus 2. *PEDIPES*, Adans. (*Pes duplex*.)

153. *P. AFRA*, (Gm.) Zool. Journ. l. c. 296. t. xiii. f. 8-12; Fé-russ. Tabl. Syst. 109. no. 1. *Le Pietin*, *Pedipes*, Adans. Seneg. p. 11. t. 1. f. 4. *Tornatella pedipes*, Lam. vi. 2. 221. no. 6.

Hab. vulg. sub lapidibus littoris Septentr. Promont. S^{ti} Laurentii Maderæ, cum *Truncatella truncatula* β, *Auriculisque æquali* et *exigua* consociata.

Division C. *AQUATICÆ* (aquæ dulcis).Family VII. *LIMNÆIDÆ*.

(*Inopereulatæ*. Tentac. 2, oculis ad basin internam.)

Genus 1. *LIMNÆUS*, Drap.

154. *L. TRUNCATULUS* (*Buccinum*), Müll.; parvulus v. pusillus fere minutus distincte perforatus ovato-conicus; anfr. tumidis, sutura profunda impressa; apert. spiram subæquante. Gray, Man. 240. t. 7. f. 108; Forbes and Hanl. iv. 177. t. 124. f. 3. *Lymneus minutus*, Drap. 53. t. 3. f. 5, 6. *Lymnæa minuta*, Lam. vi. 2. p. 162. no. 12; Nilss. p. 72. *Limnæus minutus*, Rossm. i. p. 100. t. 2. f. 57.

Var. β. spira subbreviore aperturam vix æquante, perforatione subpatula; Phil. i. 147. t. 9. f. 2.

Hab. (β) in irriguis Maderæ infra 1500 ped. vulg.

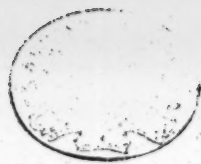
Obs. *T. Maderenses* minutæ 3-4, raro 5-6 mill. longæ; anfr. ult. aliquando obsolete subcarinato. Exemplis Sicilianis a cl. Philippi descriptis omnino consimiles videntur.

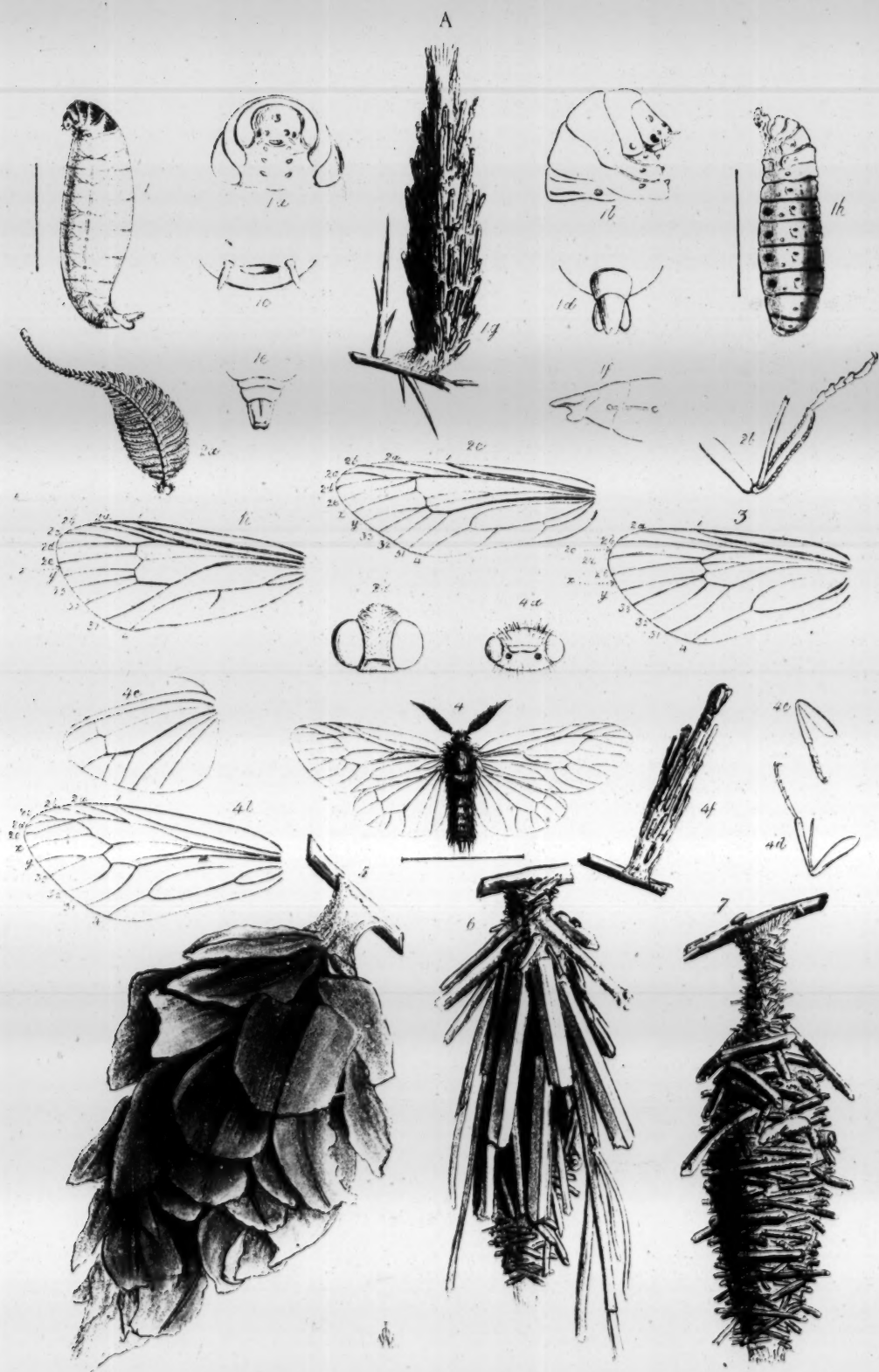
Genus 2. *ANCYLUS*, Geoffr.

155. *A. FLUVIATILIS*, Müll.; Drap. 48. t. 2. f. 23, 24; Nilss. p. 84; Gray, Man. 249. t. 10. f. 125; Phil. i. 120; Forbes and Hanl. iv. 187. t. 122. f. 4.

Hab. in rivulis convallium Maderæ supra 1000 ped. ubique.

Obs. Exemplis Maderensia majuscula, striolis longitudinalibus plerumque distinctiusculis pectinato-radiata.

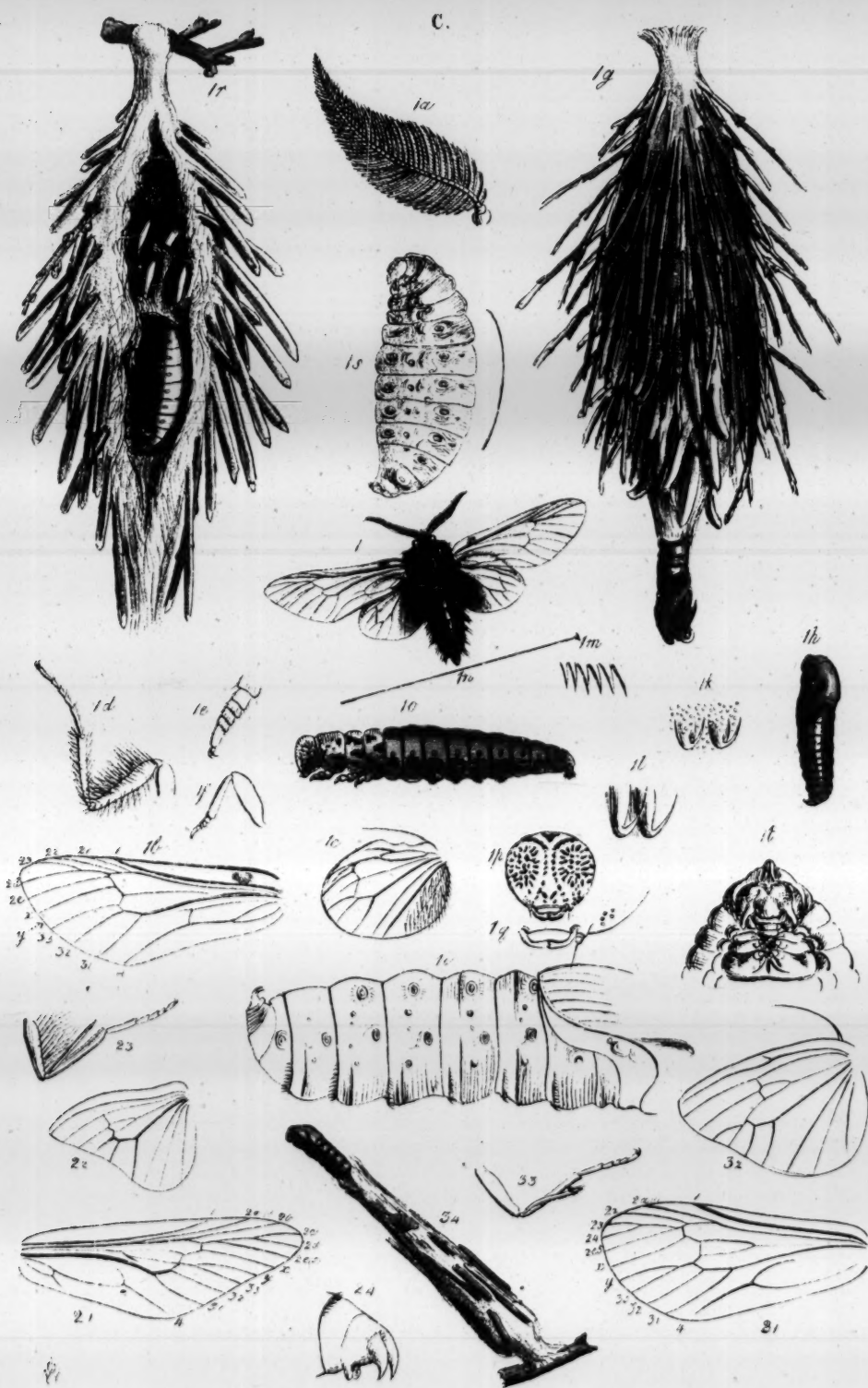


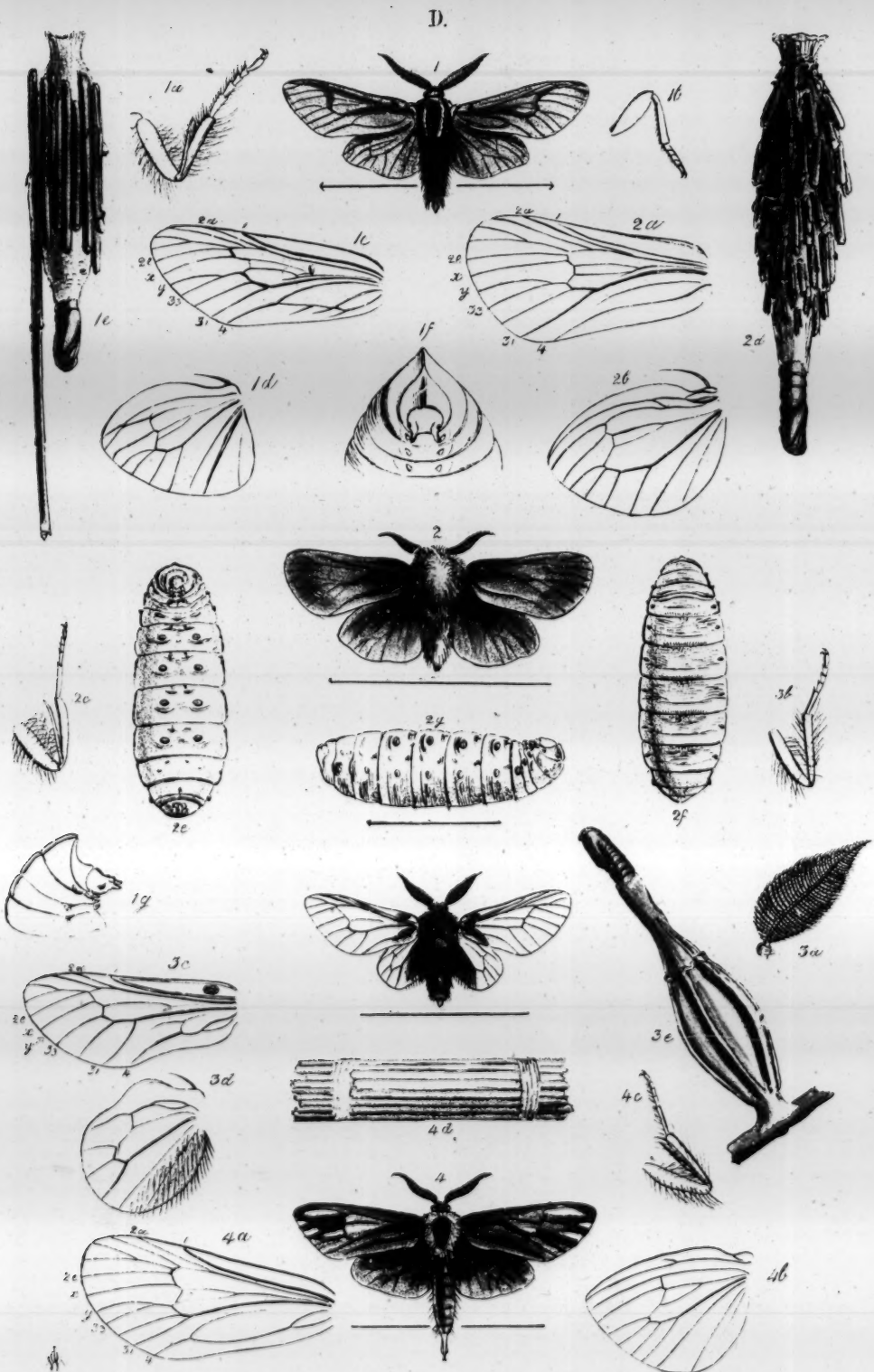












7. DESCRIPTIONS OF SOME SPECIES OF LEPIDOPTEROUS INSECTS
BELONGING TO THE GENUS *OIKETICUS*.
By J. O. WESTWOOD, F.L.S.

(Annulosa, Pl. XXXIV.—XXXVII.)

It may probably be regarded as one of the settled axioms in natural history, that there is not a single character which has been employed to distinguish any group of considerable extent, which is not liable to be effaced or even contradicted by some one or more of the members thereof; thus, whilst we have quadrupeds without legs, and birds without wings, the great division of annulose animals characterized by the possession of articulated feet contains great numbers of species which are entirely destitute of those organs; and in like manner the secondary division of the Annulosa, distinguished by the possession of wings in the final state (or the *Ptilota* of Aristotle), exhibits to us many species which never gain instruments of flight. Instances, however, in which both these grand characteristics are absent, are of the greatest rarity. Of wingless *Ptilota* examples occur in most of the orders, as in the female glow-worm among the *Colcoptera*; the neuter ant and female *Mutilla* among the *Hymenoptera*; many of the smaller grasshoppers and locusts among the *Orthoptera*; some of the *Gerridae* among the *Hemiptera*; the genera *Boreus* and *Termes* in the *Neuroptera*; the female *Coccus* among the *Homoptera*; the genera *Chionea* and *Borborus* among the *Diptera*; the *Stylopidae*, in the order *Strepsiptera*, and the females of various moths, as in the genera *Orgyia* and *Cheimatobia*, as well as in *Oiketicus* of L. Guilding. Amongst these exceptions it will be remarked that the majority are cases in which only the females are wingless, whilst all except *Coccus*, *Stylops*, and *Oiketicus* possess articulated feet in the wingless state. These three genera would therefore be regarded, if we considered only the adult state of the females, as the most degraded instances of apiropodous *Ptilota*. But such an opinion cannot be maintained, since the early states of these insects exhibit as high an amount of organization as those of any of the other insects in the orders to which they respectively belong, their peculiar characteristic being, that, whilst in the great mass of winged insects there is always a gradual evolution of structure, by which at length wings and legs are developed, these particular individuals, destined ultimately to appear in such a degraded condition, not only gradually lose their powers of evolution, but are subjected to a power of absorption by which the limbs which they at first possessed are gradually reduced in size and ultimately entirely lost, till the animal retains only the appearance of a short sluggish vermiform animal, in which not only are the wings and legs but also the antennæ and the organs of the mouth almost or entirely obliterated, and even the articulated condition of the body nearly lost.

Such is the apparently helpless condition of the females of a rather extensive group of moths, which have been long well known to German entomologists under the name of *Sackträger*, of which the smaller species constitute the genus *Psyche*, whilst some of the larger were

formed by the late Rev. Lansdowne Guilding into the genus *Oiketicus*. The memoir on the two West Indian species observed by that author is contained in the volume of the Linnæan Transactions, and is one of the most valuable contributions to the science contained in the volumes published by that Society. Whilst the plates, however, which illustrate this memoir clearly prove the close affinity of the two insects, the males are very distinct in form from each other, and ought evidently to be regarded as types of separate subgenera. Of their intimate connexion with the smaller European species known under the generic name of *Psyche* (but which have lately been distributed by M. Bruand, in an excellent monograph on the group, into various subgenera), there can be no possible doubt; indeed the largest British species cannot be separated generically from *Oiketicus*.

OIKETICUS NIGRICANS. (Plate XXXIV. fig. 1 and details.)¹

Of this species males only were first captured in this country, which were illustrated by Mr. Curtis in his "British Entomology" under the name of *Penthophera nigricans*; its generic relation with *Penthophera* is, however, entirely unfounded, whilst even its family connexion therewith is at least questionable. By the kindness of F. Bond, Esq., I am enabled to exhibit at the present meeting of the Zoological Society living specimens of the females of this species, together with the male and the cases formed by the caterpillars, covered with small morsels of twigs and ling. From a comparison of the characters of this species as compared with the other British Psychides, I have considered the former as subgenerically different from them, and have applied to it the name of *Pachythelia*. The case of the larva affixed by its mouth to a twig of ling is represented in Plate XXXIV. fig. 1g. The caterpillar has habits similar to those of the larva of Mr. Guilding's *Oiketicus*, and like this has the head and thoracic segments of a pale buff colour dotted with black. Great numbers of the cases of this species were found in the New Forest by S. Stevens, Esq., F.L.S., &c., to whom I am indebted for the following note on the habits of the species:—

"I found the cases of this insect both at Ringwood and Lyndhurst in the New Forest, attached to the points of the heath and gorse, in the third and last week in May, and the perfect insect appeared a few days after, the females more like a maggot than a complete insect, having neither wings nor legs, or at least only the rudiments of the latter; they occasionally come out of their cases, but generally lay their eggs first; two of the males which I reared had not been out of the chrysalis above ten minutes ere they paired with the females, but did not remain in connection above a quarter of an hour, nothing but their head and wings being observable at the time. Whilst at Lyndhurst, I kept the box I had the cases in out of doors, and one evening, it appears, the garden was quite alive with them, the males flying round the box and settling on the top, no doubt attracted by a female; their scent must be very strong, as the heath was more than half a mile off. I, unfortunately, was not at home at the time, but the woman at the cottage secured a specimen in a pill-box. I afterwards kept watch for them, but they did not appear another evening, al-

though there were several unimpregnated females in the box : how is this to be accounted for? The males invariably emerge from the chrysalis between 5 and 7 in the afternoon ; but I have only, as yet, reared fourteen males and about two dozen females out of upwards of 100 cases ; I begin to fear the remainder must be dead."

The accompanying figure of the female of the British species was made from the living insect, specimens having been sent me from Scotland by Mr. Weaver in the middle of the month of June. The body has all the soft appearance of that of the larva of a wasp or bee, and is of a pale dirty whitish colour, except the upper side of the head and thoracic segments, which are brown; the first, fourth, fifth, sixth, seventh, eighth, ninth, tenth and eleventh segments of the body are furnished at the sides with a pair of spiracles, from which the tracheæ may be seen to radiate through the thin skin of the body ; on the underside of the body is a row of nine small brown spots in the middle of the segments, commencing on the segment next to the head, those on the thoracic segments being close together between the minute rudiments of legs. The head has three deep circular impressions in front, forming a triangle ; the eyes appear to be merely irregular black spots, with the surface continuous and destitute of facets ; the antennæ are rudimental, consisting of a minute exarticulated pair of appendages on the underside of the front of the head ; between the rudimental antennæ there is a transverse impression in the place of the mouth which is alternately puffed out and withdrawn, but no opening is visible ; the legs are minute tubercles ; the body is terminated by a small fleshy lobe or appendage, beneath which is a fleshy pro-leg or wart. The insect has a very strong vermicular motion, contracting segment after segment, considerably resembling in this respect the incipient pupa of some Hymenoptera. It twists the extremity of its body about in various directions, especially upwards, with considerable energy.

The winged male has the antennæ bipectinated to the tips ; the anterior legs are long and slender, the tibia being furnished with a long and slender spur arising from near the base, and the forewings are only furnished with eleven branches running to the margin of the wing. From a comparison of the figure of this wing with those of *O. Saundersii* (Pl. XXXV. fig. 2) and *O. Hübneri* (Pl. XXXVI. fig. 1b), it appears evident that the wanting branch is that analogous to the upper discoidal of Mr. Edward Doubleday.

The figures given by the Rev. L. Guilding of his two West Indian species of *Oiketicus* being deficient, from containing no representation of the veining of the wings, the structure of the legs, &c., I have endeavoured to supply these deficiencies by an examination of typical specimens, which are in fact requisite to enable us to establish satisfactory comparisons with the new species described in this paper.

OIKETICUS KIRBII. (Plate XXXIV. fig. 2 and details.)

Of the male of *O. Kirbii*, L. G., there is a typical specimen in the Kirbian cabinet of the Entomological Society, which has afforded the

accompanying figures. The antennæ consist of about forty joints, the third and eighteen or nineteen following bipectinated, the terminal pectinations being shorter on the underside, and the remaining joints simply serrated. The head has two minute slender rudimental exarticulate palpi, and the fore wings have the full complement of branches running to the margin of the wing, *i. e.* twelve; of these, however, that (*y*) which represents the lower discoidal of Mr. Edw. Doubleday is united into a fork with the third branch of the median vein as in *O. Saundersii*. The fore tibia has a long flattened appendage slightly notched at the base, arising near its base.

OIKETICUS MACLEATH. (Plate XXXIV. fig. 3.)

Of the male of *O. MacLeathii*, L. G., there is also a typical specimen in the cabinet of the British Museum.

In the fore wings of this species there are only ten terminal branches, the third branch of the subcostal and the upper discoidal being obsolete, and the lower discoidal (*y*) arises conjointly with the third branch of the median from the lower extremity of the discoidal cell. The fore legs are long and slender, with the fore tibiæ simple.

By the kindness of W. W. Saunders, Esq., I am also enabled to exhibit, describe, and figure several new species of these insects recently brought from New South Wales by Mr. W. Stephenson.

The cases of several of the Australian species of these insects are figured by Mrs. Meredith in her 'Notes and Sketches of New South Wales,' and noticed in the following terms:—"Some of the insect architects here are most extraordinary creatures; but I grieve to say I know comparatively little about them, my chief acquaintance being with their deserted houses, of which I have several kinds; some of these are formed of straight twigs, the sixth or eighth part of an inch thick, and from two to four inches long, placed side by side in a circular form and very strongly webbed together within, so that it is impossible to tear them asunder without breaking the twigs, the ends of which usually project beyond the closed portion of the cell, which is suspended by a strong web woven over the spray of a tree or shrub, so as to let it swing with the wind. I have sometimes seen a large white caterpillar inside an unfinished cell, and on one or two occasions have observed a bush or tree so full of these pendent berths as to give them the appearance of a good crop of some fruit or seed. How such a creature could cut off and carry to their destined place, pieces of twig four or five times its own weight, I cannot imagine; that they were cut expressly for the purpose is evident, from the neat manner in which the ends are rounded off; they are left of uneven lengths and not webbed on the outside; which together with their being hung so as to wave with the leaves of the tree, seem all precautions against discovery. Some are formed in the same manner of much smaller twigs, others are pointed bags of strong web, with small bits of stick fastened at intervals on the outside, and some are

formed of a webbed bag to which quantities of small dead leaves are attached by one end only, so as to cover it entirely and flutter like a withered bunch of leaves; but all are hung upon trees as much resembling the nests in colour and aspect as possible. Those I have opened are lined within with the smoothest white silken web, the outer portion being brown or ash-coloured to correspond with the tint of the twigs or leaves."

Mrs. Meredith gives five figures of these cases, two being cylindrical, covered with thick bits of stick of various lengths, arranged close together longitudinally round the case; a third is a large elongate ovate bag with short bits of stick worked into it irregularly; a fourth is a cone of web covered with small dry leaves attached to it in great numbers by the base of the leaf; and the fifth is a cone of web with small twigs and grass straws attached to it and arranged longitudinally. The first and second of these figures seem to represent the cases of the same species, of which I do not know the perfect insects; the third is a small case of *Oik. Saundersii*; the fourth appears to be a small case of leaves similar to that figured in Plate XXXIV. fig. 5, of which I am not acquainted with the perfect insects; and the fifth may be a small case of *Oik. Hübneri*.

OIKETICUS SAUNDERSII, Westw. (Plate XXXV.)

Mas. *Niger, capite dimidio antico, thoracis, pedibus anticis, incisuris apiceque abdominis fulvis, antennis brevibus nigris dimidiato-bipectinatis; alis fuliginosis, venis hyalinis, tarsis nigris.*
Expans. alar. antic. unc. 2.

Fem. *Cylindrica, luteo-albida vel faunicolor, capite segmentisque tribus anticis supra nudis, glabris, reliquis sericeis opacis, apicali tomento sericeo obscurius colorato omnino vestito; pedibus brevissimis, antennis obsoletis (oculo nudo haud detectis), oviductu elongato.*

Long. corp. unc. $1\frac{3}{4}$; latit. unc. $\frac{1}{2}$.

Hab. In Nova Hollandia, prope Sydney. In Mus. W. W. Saunders, British Museum, &c.

Syn. *Oiketicus elongatus*, W. W. Saunders, Trans. Ent. Soc. vol. v. (1847), p. 43.

Considering it advisable to maintain for these curious insects the system of specific names commenced by the Rev. L. Guilding, I have altered that proposed for the present species by its first describer, it being moreover inappropriate as applicable to other species agreeing with the present in structure. The antennæ of the males of this species consist of about forty joints, of which the first and second are thickened, the second very short, the nineteen following bipectinated, and the eighteen or nineteen terminal ones only serrated, but of these a few towards the base have the serratures furcate, indicating the bipectination of the preceding joints. The fore wings are elongated and offer several peculiarities in the arrangement of their veins. From the accompanying figure (Pl. XXXV. fig. 2) it will be seen that there are twelve branches running to the margins of the wing (which is the

typical number in butterflies*), and that of these, two (2c and 2d) are united into a fork near the tip of the wing, the base of which fork extends backward to the upper exterior angle of the discoidal cell, from which also a simple vein (2e) extends to below the extremity of the wing; below these is another simple branch (x) emitted from the middle of the extremity of the discoidal cell, then two others (y and 3₁) united into a fork with two simple branches beneath (3₂ and 3₁). These letters indicate the analogies which I consider these various branches to possess with those of the butterflies, and adopting the nomenclature of Mr. Edward Doubleday, the fork (2c and 2d) must represent the third and fourth branches and 2e the extremity of the subcostal vein, x the upper discoidal, y the lower discoidal, and 3₁, 3₂, 3₃, the three branches of the median vein. Here however, as in so many places elsewhere, we are met by the difficulty presented by the two discoidals; y in the species before us, forming unquestionably (so far as function is concerned) a portion of the system of the median vein. The more I investigate this subject, the less do I feel convinced of the propriety of regarding these two discoidals as having a distinct system of their own, feeling on the other hand that the upper discoidal, x, belongs to that of the subcostal, and the lower discoidal, y, as here, to that of the median vein. In this point of view, the figure which Zeller has just published of the veins of the wings of *Auxocrossa Hopfferi*, from Para (Linn. Entomol. ix. tab. 3. fig. 25), is a perfect type of the system of the veins of the wings of Lepidopterous insects. Here are, as usual, twelve terminal branches, the costal and submedian simple, the postcostal with five simple branches and its own terminal portion, and the median with four simple branches, the two composite systems being quite separate from each other, there being no transverse veinlet to close the discoidal cell, which is consequently open as in many butterflies†; but in these latter we are met by the difficulty that the fourth or anterior branch of the median (or the lower discoidal of E. Doubleday, y) is pushed forward and becomes, together with the upper discoidal, x, portion of the system of the subcostal vein. We may cut this knot either by supposing that these two contiguous branches belong to either one or other system (which accords with the views of Lefebvre), or by considering that sometimes one or other of these systems occasionally throws out another branch, the other system in such case being deficient in a branch, which is scarcely maintainable, seeing that out of the hundreds of Lepi-

* It is astonishing, with so many examples before him in which this typical number is reproduced, that M. Alex. Lefebvre, in his imaginary type of a Lepidopterous fore wing (Ann. Soc. Ent. Fr. xi. pl. i.), should have given only eleven as the typical number.

† *Parasia Carlinella* (Stainton, Ins. Brit. Lep. pl. 4. fig. 6a) is another instance of the separation of the two systems of veins: the subcostal, consisting of five branches and a terminal portion; and the median of four branches, without any discoidal veinlet, but the cell is imperfectly closed. *Asychnia modestella* (ibid. pl. 8. fig. 1a) is another example of the separation of the two systems without any discoidal veinlet, but here the median has only two and the subcostal only four branches and a terminal portion.

doptera which I have examined, not one has possessed more than the ordinary twelve terminal branches.

The under wings are small and very acute at the outer angle, but have the anal portion considerably dilated into a rounded lobe. Here, as in the fore wings, the branch y , which is the lower discoidal (or rather the only discoidal of the hind wings) of *E. Doubledayi*, is united with 3₂, the third branch of the median vein, into a fork, thus transforming it into a portion of the median system.

The fore legs are rather long and slender, especially the tarsi; the large femur and tibia are very densely hairy, and the latter is short and furnished with a strong and long flat spine on its inside. The two hind legs are very short and thick, with the tarsal joints very short and the claws strong. This dissimilarity in the legs is a remarkable and unnoticed character.

The female is a thick short vermiform creature with short tufts of hair at the sides of the thoracic portion and terminal segments; the head is distinctly furnished with eyes, and on each side below the eyes with a very short and apparently exarticulated antenna; the six legs are present, but very short and thick, and terminated by a single-jointed short tarsus, with a pair of strong claws; it is this structure of the legs which at once distinguishes this unwieldy female imago from the larva; in this respect also the female differs from that of *Oiketicus Kirbii*, which has only the very slightest rudiments of antennæ and unarticulated legs.

On the 30th August Mr. Stephenson first observed a yellowish-white substance protruding at the lower end of the largest cases, which upon close examination proved to be a portion of the females in the imago state, with one-third of their bodies exposed; about an hour afterwards, examining the cases again, he found the females had receded, and on opening a case, the female moth became evident within, and thus they emerge and recede as occasion may require. The female is a large apterous moth with very little of the ordinary appearance of an insect of the moth kind; its colour is yellowish-white, fawn or buff.

On the 5th September Mr. Stephenson examined some of the females, no males having yet appeared. Two or three were dead: one nearly so, having deposited a great number of ova within the pupa-cases, which were enveloped in a short silky material. When the female has deposited all her ova, she is literally nothing but thin skin, which soon desiccates, leaving room for the young larvæ to pass. Mr. Stephenson states that on the 20th September a male imago appeared; it had been in active operation a good while, as evinced by its wings being much broken at the tips and otherwise much abraded. It has the extraordinary power of extending the abdomen to two inches in length, and of turning and twisting it in all directions. When in this state it has alternate rings of black and yellow, with a curious appendage at the extremity. The male appears very eager to accomplish the grand object of nature, namely the continuation of its species, as its existence appears to be of short duration. The large fat or rather distended females

have not room to turn their bodies so as to present the generative organs conveniently to the male, consequently the immense development of the abdomen in the males is of the greatest importance; but it appears very extraordinary that the head of the female should be inverted, when it is known that she never emerges from the case, unless by accidentally falling therefrom, which position obliges the male, when in the act of coition, to stretch his abdomen all along the side of the female full $1\frac{3}{4}$ inch. This peculiarity appears to be the design of the All-wise Creator in order to afford a secure shelter for the defenceless larvæ, viz. the pupa-case of their parent, from which they emerge after the disappearance of their mother's body, and immediately form for themselves silken cases, covered with small pieces of anything they can procure, arranged in every respect as in the large ones.

The curious larva of this species with its case was first figured in a little miscellaneous work on natural history published at the close of the last century, entitled 'The Naturalist's Pocket Magazine,' vol. i. (1799) pl. 18, under the name of the Porcupine Caterpillar of New South Wales, without however its transformations having been observed. In the accompanying account of its habits, drawn up by an observer at Port Jackson, it is stated, that when any accident happens to its case, the Caterpillar repairs with incredible expedition whatever damage may have been received, so that in a very few hours it fills up a large hole with the same silky substance, and this with an exactness so perfect, that the nicest eye cannot discern what was the extent of the injury. The bottom of the case resembles the finest fleecy hosiery, and it is of a sort of grey, ash, or mouse colour, and has the silky softness of a mole's skin. The three segments following the head of the caterpillar are of a fine yellow colour, beautifully marked with black or dusky oblong spots: the eight following segments are of a dirtyish pale yellow colour, but the upper part of the terminal segment has the appearance of being covered with a large scale, though it is, in fact, only a substance of the same beautiful spotted yellow as the head and first three segments.

The full-grown larva of the female is represented in Plate XXXV. fig. 12. The head is comparatively small and nearly horizontal, the anterior margin of the head rounded, the clypeus forming a distinct but continuous piece, behind which is a small triangular portion bearing two minute tubercles near the middle of the face, the upper side of the head is uniform fulvous-buff coloured, the labrum is deflexed and deeply notched in the middle, the mandibles are strong and black; on either side of the head beneath is a black patch, at the anterior margin of which is placed the small group of ocelli on either side, and between them and the base of the mandibles are the antennæ, which in the dried specimens appear to consist of a very short annuliform basal joint, within the membranous apex of which are sunk the terminal joints, of which only the minute apex of the apical one is visible. The thoracic segments gradually increase in width and thickness, as do also the three pairs of thoracic legs, of which the coxæ are soldered together and dilated into a broad horny

plate, giving great support to the articulated portion of the legs*. The thoracic segments are of a rich fulvous colour, each with four longitudinal black streaks, the two hinder ones, as well as the abdominal segments, also with small distinct raised lateral fulvous pieces upon the dark ground; the first, fourth, and seven following segments respectively bear a pair of spiracles†.

The larvæ of the males are not so strongly characterized as those of the females, being nearly cylindrical, and the legs are less robust and raptorial, although the hind coxæ are developed into a conical plate behind the hind pair of legs. The cases of the full-grown male larvæ are not more than two-thirds of the length of those of the females. To one of the male cases I find the following note attached by Mr. Stephenson:—"Examined 12 June. White Caterpillar, head and first segment striped with brown. Head downwards, or the reverse way in which it feeds. Loose silk inside the case; ready to change. Examined June 27th, changed to pupa. October 1st, imago appeared."

This case, with the empty pupa skin, remaining, as is the usual custom with these insects, sticking out of the free extremity of the case, is represented in Pl. XXXV. fig. 6. It will be observed below that Mr. Stephenson noticed that this species was occasionally infested with Ichneumonideous parasites, as was also the case with Mr. L. Guilding's West Indian species; but in a specimen of the case of this species brought home by Mr. Edwards, which I examined and sketched twenty-five years since, I found the body of the larva shrivelled up within the case, in which were about thirty small, elongate, ovate, smooth, red-brown puparia of some parasitic species of Tachinideous Muscidae, dispersed amongst the silken lining of the case, from all of which the flies had made their escape.

Like the pupæ of the Hepialidæ, the male pupæ have the power of stretching out the abdominal segments to a considerable extent, in which position they remain after the imago has made its escape; they are endowed with this power to enable them to work their way out of the extremity of their cases, in doing which they are moreover assisted by the transverse series of minute hooks on the dorsal surface of the abdominal portion of the body. These hooklets are of two kinds, each of the 2nd, 3rd, 4th and 5th segments having a row of fine recurved hooks or strong curved short bristles across their hinder extremity, whilst the 4th, 5th, 6th, 7th and 8th have a row of stronger spines directed backwards across the base. The pupæ are prevented from being forced entirely out of the cases by two strong hooks at the extremity of the body on the underside of the 8th segment, which appears to be composed of the rudiments of two

* This peculiar strength of the legs, with their gradual increase in size, is well represented in the Rev. L. Guilding's figure of the larva of *Oiketicus Kirbii* (Linn. Trans. xv. tab. 7, fig. 7), but he has not noticed the remarkable construction of the coxæ above described.

† I see nothing in this larva resembling the four spiracles represented by the Rev. L. Guilding, above the ventral pro-legs of the larva of *O. Kirbii* (tab. cit. fig. 7).

or three segments soldered together, having two pairs of small tubercles beneath, in addition to the two anal hooks; it is in this manner that the terminal abdominal segments of the larva become lost in the imago. The view of the anterior part of the body of the male pupa (fig. 8) well exhibits the broad cases of the antennæ as well as those of the thighs, *x*, and tibia and tarsus, *x*, *x*, of the fore leg, and those of the 2nd leg, *x*, *x*, *x*, the short hind leg being concealed by the wing-cases.

The following particulars relative to the economy of this species are given from the notes of Mr. Stephenson by Mr. W. W. Saunders. "The larvæ are enclosed in a silken case, fortified on the outside with pieces of stick of various lengths, generally about half an inch long in the main part, but towards the lower end there are usually a few from one to three inches in length, in the centre of which the lower end of the silken case protrudes, free from the sticks, and which is very flexible. Through this aperture the larva discharges its excrement and exuviae. The upper or head extremity of the case is a beautiful tissue of soft silk, forming a tube half an inch in width, through which the larva emerges to feed and change its position. It frequently comes out half its length, but most commonly only protrudes its six true feet and the first four segments of the body. It generally takes the precaution to attach a portion of the side of the mouth of the tube to the branch upon which it is feeding, and when anything touches it unexpectedly, it immediately and with great celerity recedes into the case, drawing in the flexible part of the tube after it, and contracting the aperture so as to exclude all enemies. The larvæ of the largest cases are about three inches in length and half an inch in diameter. The abdominal and anal feet are mere circles of small points or hooks with which it moves in the case, taking hold of the beautiful silken lining, to which it can adhere with great pertinacity. The cases are found suspended on various shrubs, such as the different kinds of *Leptospermum*, *Melaleuca*, &c. at all seasons, and are very conspicuous. Previous to changing into the pupa state, the larva firmly fixes itself with silken fibres to some branch or paling, drawing together and permanently closing the head opening. It then reverses its position in the case, and envelopes itself in a beautiful soft silken cocoon of a yellowish-white colour. On opening a considerable number of cases I found the insect in various stages of growth in June. The pupæ of the largest cases are about 2 inches in length and half an inch in diameter, and are of a dark chestnut colour; those of the smaller cases are darker, inclining to black, with the abdomen much attenuated, and about one inch and a half in length. The former are females, the latter males."

Notwithstanding the extraordinary care bestowed upon the larvæ to protect them from enemies, Mr. Stephenson observed many examples of the depredations of a parasite, and an *Ichneumon* had appeared in more than one instance.

OIKETICUS HUBNERI, Westw. (Pl. XXXVI. fig. 1 and details.)
Mas. Totus niger dense hirtus, antennis solis flavis, 48-articulatis,

ad apicem bipectinatis; alis subelongatis, hyalinis, venis luteis, nigro setosis, posticis subrotundatis, costa areaque nigro dense hirtis.

Expans. alar. unc. 1 $\frac{3}{8}$.

Larva obscura, capite segmentisque tribus anticis albidis, nigro punctatissimis, carinis lateralibus carnosis, propedibus dorsoque segmenti ultimi rufo-castaneis.

Habitaculum extus subcoriaceum, ramulis numerosissimis tenuibus obsitum, his basi tantum adfixis apicibus liberis.

Pupa maris elongata, nigra, nitida, segmentis abdominalibus 2, 3, et 4 ante apicem apiceque 5ti serie transversali dorsali spinularum curvatarum, recurvarum instructis, 6to inermi, 7mo et 8vo ad basin serie transversa spinarum rigidarum postice directa instructis; tribus ultimis subcoalitis, apicali hamulis duobus minutis, recurvis terminato.

Pupa faeminae obesa, nigra, nitida, segmentis 4 anticis carinatis, capite parvo, utrinque ceratotheca brevi instructo, podothecis minutis, segmentis abdominalibus inermibus, apicali hamulis duobus minoribus recurvis terminato.

Hab. in Nova Hollandia (D. Stephenson). In Mus. W. W. Saunders.

In addition to the materials received by Mr. Saunders, I am fortunately able to illustrate the history of this species by figures of the larva and its details, drawn by me twenty-six years since, and which have hitherto remained unpublished. In a case of this species, formerly in the collection of Mr. Edwards, I found a very well preserved larva which supplied these figures. The larva itself is represented in Pl. XXXVI. fig. 1 o; it agrees in general form with that of *O. Saundersii*, but is at once distinguished by the great maculation of the head and thoracic segments, which, as well as the legs, are pale buff dotted with black; the longitudinal fleshy ridges at the sides of the body, the pro-legs, and the upper side of the terminal segment, red-brown; the remainder of the body in the specimen examined had changed to a blackish colour. Figure 1 p represents the front view of the head, and fig. 1 q the eyes and antenna of the left side, and the upper lip and mandibles *in situ*. The head of this larva was towards the slender free extremity of its case, showing that it had turned itself therein in order to prepare for assuming the pupa state, and consequently that it had arrived at its full size, and had then died. The case also agreed in size with those brought from Australia by Mr. Stephenson, from which the perfect insects had made their escape. There is scarcely any difference in size between the cases of the male and female larvæ in this species. It will be observed that the case is covered with a vast number of very slender twigs, and these appear, from the different specimens brought home by Mr. Stephenson, to have been cut from different kinds of trees; hence it is evident that the species is not confined to a single tree; it will be moreover seen that these twigs are arranged somewhat systematically, the base of those nearest the narrow extremity lying beneath those nearer the wider aperture or mouth, which are thus perceived to have been added subsequently, proving, in fact, that the case is increased gra-

dually in size in the direction of its mouth, where the head of the larva emerges from the case; it is therefore easy enough for the caterpillar to extend its nest in this direction whilst remaining within it, just as a bricklayer builds the shaft of a manufactory chimney from within, but the caterpillar must protrude a considerable portion of its body in order to affix the twigs on the outside; and in this part of the business we also perceive an interesting piece of instinct, the loose points of the twigs being always directed backwards, so that in walking they oppose no resistance to the progress of the caterpillar, which they would do were they affixed either in the opposite direction or without any order.

The pupa of the male agrees for the most part with that of *Oiketiscus Saundersii*. The 2nd, 3rd, 4th and 5th segments are armed on the back, along the hinder margin, with a transverse series of fine recurved hooklets. The 6th segment is destitute of any hooks or hooklets, and each of the 7th and 8th segments has a row of stronger sharp teeth directed backwards at its base. The correspondence of the abdominal segments of the pupa with those of the larva, is proved by the appearance in the former of traces of the ventral prolegs of the latter.

The pupa of the female is very robust and, of course, destitute of wing-cases, but with slight traces of leg-cases, and also with two elongated cases extending from each side of the head, of which it is not easy to understand the object; the thoracic segments are rather strongly ridged, and the abdominal segments have lateral spiracles, and are also provided on the underside with four pairs of deep impressions, indicating the position of the ventral pro-legs of the larva (a peculiarity which I have not elsewhere noticed in Lepidopterous pupæ); the body is terminated by two distinct hooks on the underside. In the opened case, represented in fig. 1 r, I found an empty female pupa-case with the head lying towards the narrow apical opening; near the anal extremity of its body the shell of the pupa-case had been burst through in several places, and behind it, lying among the soft woolly lining of the case, were four pupa-cases of a parasitic muscoid fly, of the subfamily Tachinides, which were also empty, the flies having made their escape; behind these, towards the base of the case, lay the skin of the larva, shed on assuming the chrysalis state.

The perfect male insect differs from *O. Saundersii* in its antennæ, which are bipectinated to the tip; they consist of forty-eight joints, and the two thick basal ones as well as the terminal joint are simple. The fore legs are slender, the tibia being destitute of the elongated spur observed in *O. Saundersii*. The two hind legs are short and thick, with very short robust tarsal joints and strong but simple unguis. The fore wings of the male are much shorter than in *O. Saundersii*, and they are traversed to the margins by only eleven branches of the veins. From a careful comparison of this wing with that of *O. Saundersii* (Pl. XXXV. fig. 2), it will be evident that the wanting branch is the lower discoidal (*y*), or in other words, that the two branches, 3₃ and *y*, of the fork in the middle of the apical margin of the fore wings of *O. Saundersii* are coalesced into the 3rd

branch of the median, 3₃, of *O. Hübneri*, which also tends still more fully to prove that the lower discoidal, theoretically speaking, forms part of the system of the median vein. The costal area is furnished near the base beneath with a strong hirsute lobe, through which the long bristle or bridle at the base of the costa of the hind wings passes. These latter wings agree with the fore ones in being destitute of the upper branch of the fork, formed by the 3rd branch of the median vein in *O. Saundersii*. In all the wings, moreover, the discoidal cell is only traversed by a simple longitudinal veinlet, whereas this is forked in the last-named species.

OIKETICUS LEWINII. (Pl. XXXVII. fig. 1 and details.)

Mas. *Fuscus*; capite antice, fasciis duabus longitudinalibus thoracis, squamulisque ad basin alarum griseo-hirtis; alis fuliginosis, venis, presertim anticarum, fusco-hirtis, pene fulvo; antennis ad apicem bipectinatis.

Expans. alar. antic. unc. $1\frac{1}{4}$.

Fœmina. *Aptera*, grôssa, subalbida, obscura, segmentis thoracis glabris, fulvis, carinatis, 1mo subcucullato; antennis brevibus, exarticulatis, pedibus minimis, tuberculiformibus, (parte postica corporis deterita).

Habitaculum elongatum, subcylindricum, extus ramulis fere habitaculi longitudine, longitudinaliter omnino affixis, obtectum.

Hab. in Australia (D. Stephenson). In Mus. D. W. W. Saunders.

The males of this species at once differ from those of the preceding by the dark smoky colour of the wings, and the still darker colour of their veins, as well as of the antennæ, which are bipectinated to the tip; they consist of thirty-nine joints, of which the two thickened basal ones and the two at the apex are simple, the pectinations gradually shortening to the thirty-seventh joint. The veining of the wings nearly accords with that of *O. Saundersii*, although they are of a shorter form, and the hind ones are not lobed at the anal angle. The fore legs are long and slender, the tibiæ furnished with an elongated spur at the base, and the hind legs are much shorter and thicker.

Figs. 1f & 1g represent the anterior portion of a specimen indicated as a "female which had deposited ova." The head is small, with two projections at the anterior angles, which do not appear to be either articulated at the base or along their length; on either side is a small dark spot representing the eyes; the thoracic segments are very glossy and produced into a sharp carina down the middle, the first segment behind the head being almost cucullated. The legs are very minute, rudimental, and apparently exarticulate.

The case is cylindric, with twigs of various sizes, but generally nearly as long as the case, fastened throughout their whole length on the outside; these are not arranged with so much regularity as in the cases of some of the other species, and occasionally one of the little twigs extends considerably beyond the extremity of the case, as in figure 1e.

The pupa of the male is nearly black and glossy, the incisions of the abdominal segments paler coloured; the head-case between the eyes

is produced into a conical point, and the second abdominal segment (which extends to the extremity of the wing-cases), as well as the third, fourth and fifth, are furnished on the back with a transverse series of recurved hooklets close to the hind margin. Those on the fourth segment are finer than those on the preceding; moreover the fourth, fifth, sixth, seventh and eighth segments are armed on the back with a series of spines at the base of each, directed backwards, those of the fourth segment being the most slender.

OIKETICUS BOISDUVALII. (Pl. XXXVII. fig. 2 and details.)

Mas. *Omnino fulvo-hirtus, pedum anteriorum basi antennisque fuscis, alis pallide luteo-fuscis, costa anticarum ad basin obscuriori.*

Expans. alar. antic. unc. $1\frac{1}{8}$.

Habitaculum elongatum, sensim attenuatum, extus ramulis brevissimis, numerosissimis, omnino affixis obtectum.

Hab. in Australia (D. Stephenson). In Mus. D. W. W. Saunders.

Exclusive of the peculiar colour of the males, this sex is remarkable for the shortness of the wings, which gives the insect somewhat the appearance of the lackey moth (*Clisiocampa Neustria*). The antennæ consist of about forty joints, and they are bipectinated to the tip. The veining of the wings agrees almost precisely with that of *O. Saundersii*. The fore legs have the tibiæ furnished with the elongated spur at the base.

From a few fragments of the exuviae of the larva of the male in one of the cases, it is evident that the head and thoracic segments were maculated with yellow and black, but the pieces are so much injured that I cannot arrange them into segments.

The pupa of the male is of a light chestnut colour, with the wing-cases darker; the head-case is carinated above, and the dorsal portion of the abdominal segments is strongly striated or wrinkled transversely. The second and third segments are rugose at the base on the back, the fourth and four following are armed with a row of spines at the base, gradually becoming stronger on the hinder segments; the third, fourth and fifth have a transverse row of recurved hooklets on the hind part of the back of each. The fourth, fifth, and sixth beneath exhibit the appearance of a pair of pro-legs.

The female pupa is of a black colour, chestnut beneath and at the edges of the segments; it is elongate-ovate, the first segment behind the head slightly carinated; the abdominal segments are finely striated transversely, the base of each being rather rugose, and the extremity of the sixth and three following segments have a row of very fine recurved hooklets. The extremity of the body beneath is destitute of the two horny points observed in the pupa of the male.

OIKETICUS HERRICHII. (Pl. XXXVII. fig. 3 and details.)

Mas. *Niger, dense hirtus, capite colloque griseo-albidis; antennis obscure fuscis, ad apicem bipectinatis; alis hyalinis, venis pallide fusco-luteis, costa areaque anali omnium dense nigro-hirtis, pene aurantio.*

Expans. alar. antic. unc. $1\frac{1}{2}$.

Habitaculum ovale, coriaceum, extus ramulis nullis obtectum, carinis autem sex longitudinalibus elevatis; basi et apice tenuibus haud carinatis.

Hab. in Australia (*D. Stephenson*). In Mus. D. W. W. Saunders.

The male of this species agrees with that of *O. Hübneri* in the beautiful hyaline texture of the wings, almost destitute of scales or hairs (except along the costa and anal area, which are black), but the black antennæ, as well as the remarkable structure of the case of the larva, at once remove it from that species, with which it moreover almost precisely agrees in the veining of the wings, except along the costal portion of the hind ones, in which the veins are more irregular. The antennæ consist of about forty-two joints, which are bipectinated, except the two at the base and the apical one. The anterior tibiæ are not furnished with the elongated spur at the base (a character which also occurs in *O. Hübneri*), the hind pair of legs are short and proportionately thicker than the fore ones.

The curious construction of the leather-like case, destitute of twigs or leaves on the outside, will not fail to attract notice: its formation must exhibit a curious modification of instinct.

The second and three following abdominal segments of the male pupa have the hinder margin furnished on the back with a row of fine short recurved bristles, and the sixth, seventh and eighth segments have a strong row of spines at the base of each, across the back; the third, fourth, fifth and sixth segments moreover have a pair of large oval impressions on each on the under side, representing the pro-legs.

In addition to the preceding Australian species of this curious group, I have figured the cases of three other species from New Holland, of which the perfect insects have not hitherto been observed. Two of these were brought home by Mr. Stephenson, and are in the collection of Mr. Saunders, whilst the third is in my own collection.

The first of these cases (Pl. XXXIV. fig. 5) is of considerable size and covered externally with large pieces of leaves cut somewhat irregularly, but mostly of an oblong form, attached by one end only, the remainder being free. Within this case I found some fragments of the cast skin of the larva, the head being strongly maculated with black spots more or less confluent; six of these are arranged in pairs upon the triangular space above the labrum. The thoracic segments were much less strongly spotted. The case also contained a female pupa of an elongate-ovate form, much larger than that of *O. Hübneri*, having the dorsal surface of the thoracic segments keeled, and that of the middle segments of the body but slightly wrinkled, and the hinder ones smooth. It is of a chestnut colour, the hind part of the abdominal segments with a ring of black. The third and three following segments of the abdomen with a row of very fine recurved hooklets at the extremity of the upper surface, the sixth and seventh rather rugose at the base, and the eighth with a row of small spines at the base.

Pl. XXXIV. fig. 6 represents another case, armed beneath with very short thin twigs stuck on transversely, above which are narrow pieces of flattened lanceolated leaves ribbed down the centre, varying considerably in length, mixed near the apical end with bits of stick. In the only specimen of this case brought home by Mr. Stephenson, I found only some very slight remains of the cast skin of the larva, whence I infer it was a male case, and that the insect having undergone its transformations, the empty shell of the pupa had been blown out of the extremity of the case before it was found.

Plate XXXIV. fig. 7 is a case in my own collection, coated with great numbers of short bits of thin twigs entirely fixed in a *transverse* position, thus differing from all the other species described in this paper. It had been inhabited by a female larva which had commenced its transformation to the pupa state, the skin of the larva being slit and partially cast off, the upper hind part of the body of the female pupa being quite disengaged, but it had not power sufficient to throw off the head-case of the larva, which still remained entire, covering the head of the pupa. The head and thoracic segments of the larva were luteous, very much spotted with black.

The four following species are natives of Ceylon, and have been communicated to me by R. Templeton, Esq., by whom two of them were described and figured in the Transactions of the Entomological Society, vol. v. pl. 5.

OIKETICUS TEMPLETONII, Westw. (Plate XXXVI. fig. 2 and details.) (*O. tertius*, Templeton, Trans. Ent. Soc. v. pl. 5, fig. 1-4.)

The name proposed for this species by Mr. Templeton being incorrect as well as inappropriate, I propose to apply to the present species a name more in harmony with those of the remainder of the genus. The species is well distinguished by its long body and narrow pointed fore wings, which have a large patch at the extremity of the discoidal cell, and a cloud between its extremity and the apex of the wing, of black, and the antennæ are only semipectinated, thus resembling *O. Kirbii* and *Saundersii*. The male has the normal number of marginal branches (12), but the lower division (2e [5]) of the subcostal vein branches off at some distance from the extremity of the cell; and the lower discoidal (*y*) forms the upper part of a fork with the third branch (3,a) of the median vein. The discoidal cell, in all the wings, is traversed by a furcated veinlet. The antennæ consist of forty joints, of which the third to the twenty-fourth are bipectinated, twenty-fifth to twenty-seventh biserrated, and the remainder strongly uniserrated. The fore legs are long, with a strong sharp spur arising from the base of the tibia.

The male pupa is dark chestnut-coloured, with the abdominal segments strongly wrinkled transversely; the extremity of the body, in addition to the two terminal hooks, is furnished beneath with two prominent obtuse tubercles; the only row of recurved hooklets which it possesses is situated across the extremity of the third abdominal

segment, the fourth to the eighth segments having a row of spines at the base of each.

The Entomological Society of London have received specimens of this species with the larva-case, from Hong Kong, presented by J. C. Bowring, Esq. A careful comparison of the Chinese individuals with Mr. Templeton's typical specimen, leaves no doubt as to this remarkable geographical range of a species of this group.

OIKETICUS CONSORTUS, Templeton. (Pl. XXXVI. fig. 3, 1-4, details.)

This species was also described by Mr. Templeton in the 'Transactions of the Entomological Society,' vol. v. pl. 5. fig. 5-7, without any details being given. The species is at once distinguished from *O. Templetonii* by its broader and more obtuse wings, its antennæ bipectinated to the tip, thus more nearly resembling *O. MacLeaii*. The antennæ are thirty-seven-jointed, the third to the thirty-sixth joints bipectinated, the pectinations being longer and more slender than usual. The fore-legs are slender, the tibia with the long spur (finely setose on the outer edge) arising from its base. The hind femur is rather thicker and slightly shorter than the fore one; the hind tibia about as thick as, but shorter than, the fore one, and the hind tarsus is as long as the three terminal joints of the fore tarsus. The veins of the fore-wings are arranged nearly as in *O. Templetonii*, except that the terminal branch of the subcostal vein (2e) arises close beyond the discoidal cell. In the hind wings the third branch of the median vein is furcate.

In the larva-cases figured by Mr. Templeton the outer surface is naked, but in another case received from him, a few particles of twigs and bits of leaves were fastened on the outside, as represented in fig. 3, 4. In this case I found the cast skin of the larva, showing the head and thoracic segments to have been of a pale yellow colour very much dotted with black, there being a transverse row of black spots in front of the prothoracic segment. The pupa of the male has the second and third segments unfurnished with hooklets, the fourth with a row of very fine recurved setæ across the posterior margin, and the fifth with a row of recurved hooklets. The sixth segment is unarmed, and the seventh and eighth have a strong row of spines at the base; the abdominal segments being strongly wrinkled transversely, and the anal segment much incurved, with two strong hooks.

OIKETICUS DOUBLEDAILI, Westw. (Pl. XXXIV. fig. 4 and details.)

Mas. *Piceus*, *griseo-hirtus*, *antennis fuscis*, *pedibus obscure luteis*, *alis hyalinis*, *latis*, *abdomine brevi*, *gracili*, *dense hirsuto*.

Expans. alar. antic. unc. $\frac{2}{3}$.

Habitaculum larvæ cylindricum, *ramulis longitudine variis*, *parallelis*, *affixis*. *Pupa maris gracilis*, *castanea*, *segmentis abdominalibus 4-8 ad basin serie spinarum instructis*.

Hab. in Ceylon (*D. Templeton*).

This very distinct species may at once be known by the large

hyaline colourless wings of the males (with which sex alone I am acquainted); the body is pitchy, densely clothed with dark grey hairs; the antennæ are brown and only twenty-five-jointed, strongly bipectinated, the pectinations long and slender, extending to about the eighteenth joint, the two or three following joints slightly bipectinated, and the remainder biserrated, but gradually becoming almost simple. The lower part of the face is furnished with a transverse raised ridge, beneath which are two black impressed dots apparently indicating the position of the palpi. The legs are slender, the tibiæ and tarsi dirty luteous, the fore tibiæ are furnished with a long spur arising from the base. The hind pair of legs are shorter and thicker than the fore ones. The wings are large, the hind ones extending nearly to the extremity of the abdomen; the anterior have the normal number of branches running to the margin of the wings, but the discoidal cell is extended so far beyond the middle of the wing, that the branches are necessarily much shortened. The discoidal cell is traversed by one well-marked and one incomplete vein. In the hind wings the third branch of the median vein is simple.

The male pupa is slender and light chestnut-coloured; the antennæ-cases extend as far as the extremity of the cases of the second pair of legs; the third, fourth and fifth segments of the abdomen have a row of fine recurved setæ across the hind margin of the dorsal portion of each, and the fourth to the eighth segments have a row of spines across the base of each, those on the fourth segment being the smallest, and those on the eighth the largest, this last having only a semicoronet of about seven or eight spines; the base of the segments is rugose, but scarcely transversely wrinkled, and the two hooks at the extremity of the body are large.

OIKETICUS CRAMERII, Westw. (Plate XXXVII. fig. 4 and details.)

Mas. Fuscus; *alis brunneo-fuscis, posticis obscurioribus, disco antillarum brunneo, venis nigro-hirtis, striola subapicale, maculis duabus marginalibus nubilisque pone medium alarum griseo-albis*; *antennis usque ad apicem bipectinatis*.

Expans. alar. antic. unc. 1.

Habitaculum larvæ cylindricum, extus ramulis longitudine æqualibus et parallelis arcte applicatis, obtectum.

Pupa maris obscure castanea, segmentis abdominalibus opacis, valde transverso-sulcatis.

Hab. in Ceylon (D. Templeton).

This species differs from all the preceding in the more varied markings of the fore wings, which are moderately elongated and have the normal number of branches extending to the margin, the lower discoidal (*y*) forming the upper division of a fork with the third branch of the median. In the hind wings the third branch of the median is accompanied by a distinct discoidal vein arising separately from the extremity of the discoidal cell. The antennæ are moderately bipectinated and thirty-eight-jointed, the pectinations extending to the extremity, the terminal joint alone being simple. The fore legs are slender and

considerably longer than the hind ones, with a long spur arising near the base of the tibia.

From specimens contained in the Cabinet of the British Museum, I infer that this is the species of which Mr. Templeton figured the case in the 'Transactions of the Entomological Society,' copied in Pl. XXXVII. fig. 4*d*.

The male pupa is dark chestnut-coloured, with the abdominal segments not at all glossy like the fore part of the body, but very strongly sulcated transversely, except about one-third of the posterior part of each, which is smooth and paler coloured. The 2nd to the 5th segments have a row of recurved setæ across the hind margin of each, scarcely visible in the second and third segments, and the fifth to the eighth segments have a row of strong spines. The two anal hooks are strong.

The female of this species has not hitherto been observed.

In addition to the preceding species from Australia, Ceylon, and the West Indies, I am able to indicate the existence of the genus in the East Indies, although not in so precise a manner as I could have desired.

In Forbes's 'Memoirs on the East Indies,' pl. 22, there is the representation of the larva of one of these insects, described as the "Faggot Caterpillar, with its nest on the variegated Acacia or Bamber tree in Guzerat." The case is cylindrical, with a number of twigs about the length of the case placed close together side by side, nearly as in Pl. XXXVII. fig. 4*d*; the caterpillar is also represented partly protruded out of the mouth of the case, with the head and thoracic segments pale coloured with dark brown spots. The perfect insect does not appear to have been observed; but in a collection of drawings of Indian insects, made by Lady Gilbert, and placed in my hands by her ladyship, I find two distinct species of these insects; one of these has a case as large as, but shorter than, that of *O. Saundersii*, externally covered with long pieces of twigs laid closely together, which was found on the 10th of August on a branch of the Asseen tree. Round the entrance or upper part was an elastic web which the enclosed caterpillar had the power of contracting or lengthening; the former it always did when alarmed. It would then fix the extremity of the web to the twig and hang from it, as if nothing possessing life was within the case; when in search of food it only puts forth the head and fore feet, notwithstanding which it moved very nimbly, house and all, along the branches. After spinning itself up to undergo its transformations, it was accidentally destroyed.

The other species observed by Lady Gilbert was also found on the 10th of August. The cases are similar to that last above described, but much smaller, about $1\frac{1}{4}$ inch in length, the twigs rather converging at the free extremity of the case. They were found on the palm tree, and fixed their cases to the frame in which they were enclosed, at the beginning of October, to undergo their transformations, appearing in the perfect state at the end of the following April, the male being small, with dark brown wings and antennæ bipectinated to the tips.

A number of specimens, apparently of this species, were lately sold by auction by Mr. Stevens in London, and I regret that I was not able to obtain a specimen for description. Major-General Hearsey also collected some of the cases of this species in Central India, without, however, obtaining the perfect insect; from these I find that the attenuated extremity of the cases arises from the fact of the larva employing the strong spines of the tree upon which it feeds for the defence of its case, the points being always directed backwards.

The minute analysis made in the foregoing pages, and the accompanying plates of twelve species of these case-bearing Moths, enables us to form an opinion as to the composition and affinities of the group in question, respecting which much diversity of opinion has prevailed. With the exception of the characters derived from the case-bearing habits of the larvæ, the wingless and unwieldy state of the female, and the more or less strongly pectinated antennæ of the males, we find no homogeneousness in the perfect state of the insects; indeed we could scarcely select three moths more unlike each other than *O. Saundersii*, *Boisduvalii*, and *Doubledaii*, and almost every modern lepidopterist would at once pronounce such variations of form to belong to as many different genera. The general shape of the body has been seen to vary from a greatly elongated to a short, robust, as well as to a short and slender form. The wings in like manner vary from the long pointed form to the very short broad proportions of *O. Boisduvalii*. They vary also in being either densely squamose or completely hyaline. Their veins also offer considerable variation both in situation and in the number of their branches, although we may affirm that the narrowness of the base of the discoidal cell, and its completely closed state by a vein which is always angulated in the middle, the apex of the angle being towards the base of the wing, and the cell itself traversed by one or two slender veinlets, often united together into a fork, appear constant characters of the group. The antennæ also vary in being only semipectinated, like those of the *Zeuzeræ*, whilst in others they are completely bipectinated to the tip; the number of joints also varies from twenty-five to upwards of forty; and lastly, the slenderness of the fore legs and the short robust form of the hind ones appear to be a good character of the group; but this portion of the body offers a striking variation, in consequence of the fore tibiæ being furnished with a long spine arising from its base, of which some of the species are destitute. The nature of the larva-case even offers striking variations, since in *O. Templetonii* and *Herrichii* it is destitute of any extraneous matters fixed on its outside. The females also, in the few species in which they have been observed, are found to vary in the amount of development of their antennæ and legs, these organs being almost obsolete in *O. Kirbii*, whilst in *O. Saundersii* the legs are well articulated.

If, with the view of establishing sectional groups, we take the semipectinated character of the antennæ as a primary distinction, we find, that although the males of *O. Kirbii* and *O. Saundersii* agree well enough together, in general form, length and narrowness of the

wings, antennæ, and spurred fore tibiæ, the females differ in the amount of development of their legs; whilst the species with entirely pectinated antennæ offer still more numerous variations. If, again, we select the want of the spine of the fore tibiæ as a primary distinction, we find *O. Herrichii*, *Hübneri*, and *MacLeaii*, varying greatly in the form of the males, in the larva-cases, and the veining of the wings, although the latter have always a deficiency in the number of the branches of the veins of the fore-wings.

Bearing the foregoing observations in mind, the following distribution of the twelve species before us must be considered as an artificial or technical one:—

- A. Antennæ of the males semipectinated, body and wings greatly elongated.
 - a. Cases of the larva with twigs on the outside.
 - * Females with articulated legs. Sp. 1. *O. Saundersii*.
 - ** Females with exarticulated tubercles in the place of the legs. Sp. 2. *O. Kirbii*.
 - aa. Case of the larva naked. Sp. 3. *O. Templetonii*.
- B. Antennæ of the males bipectinated to the tip, body and wings short or of moderate length.
 - a. Fore tibiæ of the males without an elongated spur.
 - * Wings short, rounded, fore wings with only ten branches extending to the margins. Sp. 4. *O. MacLeaii*.
 - ** Fore wings elongate, triangular, with 11 branches extending to the margins.
 - † Case of larva densely covered with thin twigs. Sp. 5. *O. Hübneri*.
 - †† Case of larva naked, ribbed. Sp. 6. *O. Herrichii*.
 - aa. Fore tibiæ of the males with a long spur.
 - * Fore wings with twelve branches extending to the margins.
 - † Third branch of the median vein of the hind wings accompanied by an extra branch.
 - ‡ Body robust, wings short, subtruncate. Sp. 7. *O. Boisduvalii*.
 - ‡‡ Body rather slender, wings more triangular. Sp. 8. *C. Cramerii*. Sp. 9. *O. Lewinii*. Sp. 10. *O. consortus*.
 - †† Third branch of the median vein of the hind wings unaccompanied by an extra branch. Sp. 11. *O. Doubledaii*.
 - ** Fore wings with only eleven branches, extending to the margins of the wing, the third branch of the median vein not united with the preceding branch into a fork. Sp. 12. *O. nigricans*.

The relationship of these insects with the families of Lepidoptera*, involving their natural situation in the order, is one which would

* The idea that *Psyche* is Trichopterous, and not Lepidopterous, does not merit refutation.

require a much more extended investigation than can be devoted to it on the present occasion. Their intimate allies are of course the *Sackträger*s of German entomologists, or the genus *Psyche*, some species of which cannot be generically separated from *O. nigricans*. The opinions of recent lepidopterists, as to the family to which they belong, have oscillated between the Bombycidae and Tineidae. The latter relationship is maintained by M. Bruand, in his elaborate monograph 'Sur la Tribu des Psychides,' published in the 'Comptes rendus de la Société libre d'Emulation du Doubs.' But nothing can be more inconclusive than the arguments by which this opinion is supported; since, because M. Bruand adds to his "tribu" other insects which are "tellement voisines des Tinéides que l'on ne peut les cloigner de ce dernier genre," and insists at the same time that "tous les Psychides doivent ne former qu'un seul groupe," he at once (without attempting any philosophical analysis either of the minute characters of his Psychides, or of those of the great families Bombycidae and Tineidae) arrives at the conclusion that "on ne doit plus hésiter à les placer dans les Tinéides."

Now the elaborate details given by Mr. Curtis in his 'British Entomology,' and especially by Mr. Stainton in his volume of the 'Insecta Britannica,' enable us to institute something like an effectual comparison between the relative characters of these two families, and to contrast them with those of the *Oiketici* illustrated in the present paper.

The size and general appearance of these *Oiketici* at once bring them into comparison with certain Bombycidae (*sensu latiori*). The rudimental mouth is another character in common with the latter, whereas in the Tineidae the palpi and spiral tongue are generally well developed. In the antennae they also agree with the Bombycidae, in which deep bipectination is the general character, whereas it is an exceptional character amongst the Tineid. In the Bombycidae, the fore legs are often the longest and the hind ones the shortest, whereas it is generally contrary with the Tineidae, in which the hind tibiae are also strongly armed with two pairs of spurs. The long spine of the fore tibiae appears also to be much more common among the Bombyces than in the Tineae, whilst we also find the veins of the wings of *Oiketicus* arranged on a different plan from those of the Tineidae; in these latter, the discoidal cell when closed is either rounded or truncate (obliquely or transversely) at its extremity, whereas in the *Oiketici* we have seen its termination angulated, the apex of the angle pointing towards the base of the wings. In the Tineidae we also find it almost a constant character, that where one of the branches of the subcostal vein is forked, it is the fourth and fifth branches which form the fork, whereas in the *Oiketici* it is always the third and fourth, *Nemophora* (Staint. pl. 2. fig. 5) being the only exception throughout the whole of the Tineideous genera, and in this genus, as in a great many of the others, the discoidal cell of the fore wings is furnished with a cell at its anterior extremity, formed by the base of the sixth longitudinal branch, which runs to the margin of the wing (*i. e.* the fifth branch of the subcostal vein), extended backwards, and joining the subcostal vein between its first and

second branches. *Lampronia* and *Incurvaria* (Staint. pl. 2. figs. 1 & 3) are excellent examples of this arrangement. This character does not occur in the *Oiketici*, the veins of which, on the other hand, are more analogous to some of the *Bombycidae*, such as *Limacodes*.

These considerations are, I think, sufficient to disprove the relation of *Oiketicus* and *Psyche* with the *Tineæ*, and to establish their position among the *Bombyces*.

DESCRIPTION OF THE PLATES.

PLATE XXXIV.

Oiketicus nigricans. (Great Britain.)

- Fig. 1. Female magnified, seen sideways, drawn from living specimen.
 Fig. 1a. Head and anterior segments of the body, seen from beneath, showing the rudimental eyes, antennæ, and legs.
 Fig. 1b. The same, seen sideways.
 Fig. 1c. The lower part of the face, showing the transverse membrane capable of alternate dilatation, and the small exarticulate antennæ.
 Fig. 1d. The terminal segment of the body, showing the produced bilobed appendage and the central terminal elongated joint.
 Fig. 1e. The same seen from beneath, the bilobed appendage seen almost vertically.
 Fig. 1f. The same, seen sideways.
 Fig. 1g. The case formed by the female larva.
 Fig. 1h. The pupa case of the female; slit behind the head for the exit of the insect.
 Fig. 1i. Fore wing of the male:—1, costal vein; 2a, 2b, 2c, 2d, 2e, branches of the subcostal; (x, upper discoidal, wanting) y, lower discoidal; 31, 32, 33, the branches of the median vein; 4, submedian vein. The same lettering is used throughout the wings represented in this and the three following plates (except that the branches of the subcostal have occasionally been numbered 21, 22, 23, 24, 25), occasionally one of them is wanting, or the lower discoidal is wanting, instead of the upper; in these cases the place of the wanting branch is indicated by a < and the indicator letter in the place which it ought normally to occupy.

Details of Oiketicus Kirbii, L. Guild. (West Indies.)

- Fig. 2a. Antenna of the male.
 Fig. 2b. Fore leg of the male.
 Fig. 2c. Fore wing of the male, with the normal number (12) of marginal branches.
 Fig. 2d. Head of the male, seen in front.

Detail of Oiketicus MacLeai, L. Guild. (West Indies.)

- Fig. 3. Fore wing of the male, with only ten terminal branches.

Oiketicus Doubledaii, Westw. (Ceylon.)

- Fig. 4. The male magnified.
 Fig. 4a. Head of the male, seen from below, showing the transverse ridge and two spots indicating the palpi.
 Fig. 4b. Fore wing of the male, with the normal number of marginal branches.
 Fig. 4c. Hind wing of the male.
 Fig. 4d. Fore leg, with spurred tibia, of the male.
 Fig. 4e. Hind leg of the male.
 Fig. 4f. Case of the male, with the empty puparium sticking out of its apical extremity.

Oiketicus —, —, and —. (Australia.)

- Figs. 5, 6, & 7. Cases of three Australian species in the Collections of Mr. Saunders and myself, of which the transformations have not yet been observed.

PLATE XXXV.

Oiketicus Saundersii, Westw. (*elongatus*, Saund.) Australia.

- Fig. 1. The male, of the natural size.
 Fig. 2. Fore wing of the male, with the normal number of marginal branches.
 Fig. 3. Hind wing of the male.
 Fig. 4. Fore leg of the male, showing the tibial spur.
 Fig. 5. Hind leg of the male.
 Fig. 6. Case formed by the male larva, with the cast skin of the pupa sticking out of its terminal extremity.
 Fig. 7. The pupa of the male, seen sideways.
 Fig. 8. Anterior part of the body of the pupa of the male, seen beneath, showing the short broad antenna-cases (*Ceratothecæ*), the two anterior pairs of legs, *, anterior femur; **, anterior tibia; ***, the intermediate tibia and the cases of the fore wings (*Pterothecæ*).
 Fig. 9. Female of the natural size, seen sideways.
 Fig. 10. Anterior part of the body of the female, seen from beneath, showing the very minute exarticulate antennæ and the three pairs of very short articulated legs.
 Fig. 11. One of the legs of the female, showing the short exarticulate but bi-unguiculated tarsus.
 Fig. 12. The case formed by the female larva, which is represented crawling, of the natural size in the upper part of the plate.
 Fig. 13. Hind pair of feet of the female larva, with greatly enlarged united coxæ.

PLATE XXXVI.

Oiketicus Hübnerii, Westw. (Australia).

- Fig. 1. The male, slightly magnified.
 Fig. 1a. Antenna of the male.
 Fig. 1b. Fore wing of the male, with only eleven marginal branches (the lower discoidal, *y*, being obsolete).
 Fig. 1c. Hind wing of the male.
 Fig. 1d. Fore leg of the male.
 Fig. 1e. Hind tarsus of the male.
 Fig. 1f. Hind leg of the male.
 Fig. 1g. Case formed by the male larva, with the puparium sticking partly out of the apical extremity.
 Fig. 1h. The male pupa, of the natural size.
 Fig. 1i. Hind part of the male pupa, greatly magnified, showing part of the case of the fore wings, the hind wing case attached to the short metathoracic segment, the two short basal segments of the abdomen partly covered by the wing cases, the four central segments of the abdomen, with indications of the prolegs of the larva, the seventh segment of the full size, and the terminal segments coalesced together.
 Fig. 1k. Portion of the row of shorter recurved hooklets at the hind margin of the basal segments of the abdomen of the male pupa.
 Fig. 1l. Portion of the rows of longer ditto.
 Fig. 1m. Portion of the rows of spines at the base of the terminal segments of the abdomen.
 Fig. 1n. Line indicating the natural expanse of the wings of the male.
 Fig. 1o. Larva full-grown but dried up, and consequently somewhat diminished in size.
 Fig. 1p. Face of the larva.
 Fig. 1q. Side of the head of the larva, showing the ocelli, antenna, upper lip, and mandibles.
 Fig. 1r. Case formed by the female larva, opened, showing the exuviae of the larva, the pupa of the female pierced near its anal extremity by its dipterous parasites, the four oval puparia of which are seen lying within the case, the interior of which is densely lined with fine white cotton wool.
 Fig. 1s. The pupa of the female, seen sideways.
 Fig. 1t. Anterior part of the body of the pupa of the female, seen from beneath.

Details of Oiketicus Templetonii, Westw. (*tertius*, Templet.) Ceylon.

- Fig. 2.1. Fore wing of the male, with the normal number of marginal branches.
 Fig. 2.2. Hind wing of the male.
 Fig. 2.3. Fore leg of the male.
 Fig. 2.4. Anal extremity of the body of the pupa of the male.

Details of Oiketicus consortus, Templet. (Ceylon.)

- Fig. 3.1. Fore wing of the male, with the normal number of marginal branches.
 Fig. 3.2. Hind wing of the male.
 Fig. 3.3. Fore leg of the male.
 Fig. 4.4. Case formed by the male larva, with the empty pupa case partly sticking out of the apical extremity.

PLATE XXXVII.

Oiketicus Lewinii, Westw. (Australia.)

- Fig. 1. Male, slightly magnified.
 Fig. 1a. Fore leg of the male, with long tibial spur.
 Fig. 1b. Hind leg of the male.
 Fig. 1c. Fore wing of the male, with the normal number of marginal branches.
 Fig. 1d. Hind wing of the male.
 Fig. 1e. Case formed by the male larva, with the empty pupa case partly sticking out of the apical extremity.
 Fig. 1f. Anterior portion of the body of the female, highly magnified and seen from beneath, showing the rudimentary antennæ and legs.
 Fig. 1g. The same, seen sideways, showing the subcucullated prothoracic segment.

Oiketicus Boisduvalii, Westw. (Australia.)

- Fig. 2. The male, slightly magnified.
 Fig. 2a. Fore wing of the male, with the normal number of terminal branches.
 Fig. 2b. Hind wing of the male.
 Fig. 2c. Fore leg of the male.
 Fig. 2d. Case formed by the male larva, with the empty pupa case of the male partly sticking out of the apical aperture.
 Fig. 2e. Pupa of female, ventral view.
 Fig. 2f. The same, dorsal view.
 Fig. 2g. The same, lateral view.

Oiketicus Herrichii, Westw. (Australia.)

- Fig. 3. The male, slightly magnified.
 Fig. 3a. Antenna of the male.
 Fig. 3b. Fore leg of the male, destitute of the tibial spur.
 Fig. 3c. Fore wing of the male, with only eleven marginal branches, the lower discoidal (*y*) being obsolete.
 Fig. 3d. Hind wing of the male.
 Fig. 3e. Case formed by the male larva, with the empty pupa case partly sticking out of the apical aperture.

Oiketicus Cramerii, Westw. (Ceylon.)

- Fig. 4. The male, slightly magnified.
 Fig. 4a. The fore wing of the male, with the normal number of marginal branches.
 Fig. 4b. The hind wing.
 Fig. 4c. Fore leg of the male, with the long tibial spur.
 Fig. 4d. Case, figured by Mr. Templeton, and considered to be that of this species, on the authority of specimens in the British Museum.
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November 14, 1854.

John Gould, Esq., F.R.S., in the Chair.

The following papers were read :—

1. ON THE BONES OF THE LEG OF DINORNIS (PALAPTERYX)
STRUTHIOIDES AND THE PALAPTERYX GRACILIS.
By PROF. OWEN, F.R.S., F.Z.S. ETC.

In my memoir of 1843*, I described two femora of birds from tertiary deposits in New Zealand, agreeing in size with that bone in the Ostrich, and referred them to a species called *Dinornis struthioides*; one of these specimens however consisted only of the shaft; the other and more perfect specimen, figured in pl. 21. fig. 3, was mutilated at both its extremities. I have since received, through the kindness of the Rev. Mr. Colenso, M.A.†, and the Rev. William Cotton, M.A., three entire specimens of femora, ranging between 11 and 12 inches in length, and the shaft of a fourth specimen, of the same species, confirming very satisfactorily that species, and completing our knowledge of the anatomical characters of the bone.

The head is rather more than a hemisphere, more prominent than in the Ostrich, and with a smaller proportion cut off, as it were, from the upper and outer part, and roughened for the attachment of the strong 'ligamentum rotundum.' From the upper part of the base of the head, an almost flat, slightly concave surface ascends, expanding, as it rises, to the broad semicircular ridge which crowns the great trochanter. In the Ostrich that process does not rise beyond the level of the head of the bone. In the *Din. struthioides* the upper trochanterian platform is broader proportionally than in the *Din. casuarinus*‡. The anterior surface of the trochanter is also extensive through the continuation outwards of the great process: it is slightly concave, sculptured by muscular impressions with intervening ridges, and by a defined oval rough tract between the head and the base of the trochanter. The outer convex expanded surface of the trochanter is more strongly marked by the insertions of powerful tendons, surrounding an irregular smooth tract near the centre of the surface. The back part of the upper end of the femur in two of the specimens presents two or three small holes leading into the superficial cancelli, by which it is possible a little air may have been admitted to these cavities; but this is a very feeble representation of the wide orifice and canal at the same part of the Ostrich's femur which conducts directly to the large air cavity in the body of that bone.

The shaft of the entire femur of the *Din. struthioides* repeats the characters described and figured in the memoir above cited. The fore-part of the external condyle begins to rise from the level of the

* Zool. Trans. vol. iii. pp. 247, 249. pl. 21. fig. 3.

† The specimen contributed by this gentleman is cited in the table of admeasurements. Zool. Trans. vol. iii. p. 329.

‡ *Ibid.* pl. 46. fig. 2.

shaft, about one-third from the distal end of the bone, and bends outwards, forwards and downwards, increasing in breadth and convexity, and forming the outer boundary of the characteristic broad rotular surface. The convex fore-part of the inner condyle forming the inner boundary of that surface is shorter, and rises more abruptly. The deep oval fossa, above the vertical broad groove for the fibula, behind the outer condyle, is well marked. The orifice of the medullary artery is at the middle of the back part of the shaft of the femur in two of the specimens.

With regard to the metatarsus of the *Dinornis struthioides*, the same satisfactory confirmation of the species has been received, as in the case of the femur, by the addition of three specimens repeating the characters of the original bone described at p. 240, and figured in pl. 27. fig. 2. of my memoir of 1843. One of these specimens, kindly sent to me by J. R. Gowen, Esq., F.G.S., Sec. H.S., was discovered in the tertiary deposits at Waikawaite, Middle Island of New Zealand, and has the two extremities more entire than in the original specimen figured. The middle of the distal trochlea is impressed by a shallow groove running its whole length, and becoming more shallow as it approaches the contracted back part of the trochlea, which terminates abruptly, projecting beyond the level of the back part of the distal end of the bone.

A second of the additional specimens of the metatarsus of the *Din. struthioides* was obtained by the Rev. Wm. Cotton, M.A., at Tarawaite, in the North Island of New Zealand: a third specimen was discovered by Governor Sir George Grey, in a cave in the district which lies between the river Waikate and Mount Tongariro, in the North Island.

From the same cave Sir George Grey likewise obtained and very liberally transmitted to me, with a most valuable collection of other bones of *Dinornis* and *Palapteryx*, an entire tibia agreeing with the portion of shaft, which, from the dimensions given at vol. iii. p. 329, I was induced to refer to the *Dinornis struthioides*, differing in its size and proportions from all the tibiæ previously described and referred to other species, but presenting similar relations of size to the femur and metatarsus of the *Din. struthioides*, which the previously described tibiæ have presented to the other bones of the leg of the respective species to which those tibiæ have been referred.

I conclude, therefore, that in the tibia transmitted with the metatarsus of the *Din. struthioides* by Sir George Grey, I possess the bone, which I have been so long desirous to obtain in order to complete the leg of the *Din. struthioides*. Like the metatarsus above-cited, it is from the left side, and they appear to have belonged to the same individual bird.

	in.	lin.
The length of this bone is	22	0
The breadth of the proximal extremity	5	6
The breadth of the distal extremity	3	2
The circumference of the middle of the shaft ..	5	0
The fibular ridge extends down	10	0

This ridge begins, as in the tibiae of other species of *Dinornis*, below the expanded end of the tibia near the middle of its back part, inclining to its outer side.

In its slender proportions, and the relative positions of the procnemial and ectocnemial ridges, the tibia of the *Dinornis struthioides* agrees with that of the *D. dromioides*.

Description of the Bones of the Leg of the Dinornis gracilis.

The advantage of additional specimens, as confirming, by the repetition of the same characters, a species previously defined, is still greater in respect of the ground which they afford for the discrimination of a distinct but nearly allied species. Notwithstanding the well-marked differences observable between the femur of the *Dinornis struthioides* and the *Dinornis gracilis*, I might have deemed them due to differences of sex or individuals, had I not had evidence of the fixity of the specific characters of the *Dinornis struthioides* by the successive arrivals of additional specimens of its bones. Attending the hoped-for confirmation from such arrivals, it appeared to be most prudent to refrain from announcing a new species of the rapidly increasing family of the great wingless birds of New Zealand until further confirmation might be obtained by corresponding differences in the tibiae and metatarsi of the two species.

Having had the good fortune at length to obtain these additional illustrations of the *Din. gracilis*, I no longer delay communicating descriptions and figures of them to the learned Society, in whose Transactions my former Memoirs have appeared and have been so liberally illustrated.

Femur.

The following are the chief dimensions of this bone:—

	in.	lin.
Length	11	2
Breadth of proximal end in the axis of the neck .	3	10
Breadth transverse of distal end	4	0
Circumference of middle of shaft	4	8

A small portion of the upper ridge of the great trochanter has been broken off: when entire, the femur of the *Din. gracilis* presents the average length of that of the *Din. struthioides*, but it is more slender in proportion, the head is smaller, and is supported by a better-marked constriction or neck, especially at its under part. The upper platform of the trochanter is narrower, the anterior border of the trochanter not being extended so far forwards and outwards. The angle between the upper and fore surfaces of the trochanter is a right one, and they meet at a sharp ridge. The rough oval surface between the head of the femur and the base of the trochanter is smaller than that of the *Din. struthioides*. The outer irregular surface of the trochanter is of much less breadth in the *Din. gracilis*. The muscular impressions at the sides of the shaft meet and form a longitudinal ridge along the back part of the middle third of the

shaft: they are separated by a tract of half an inch in the *Dinornis struthioides*, and terminate below in two tuberosities. The corresponding ridge formed by the meeting of the vasti-muscles along the fore part of the shaft is shorter in *Din. gracilis* than in *Din. struthioides*.

The most marked distinction, however, is presented by the distal extremity of the bone, which is not only relatively less expanded in the *Din. gracilis*, but the rotular groove is narrower, and is bounded laterally by condyloid eminences of more nearly equal length; the external one not rising so high up, nor describing the sigmoid curve in descending, as in the *Din. struthioides*. The rotular groove in the *Din. gracilis* is impressed by a transversely oval rough depression, at its upper part, with sharp lateral borders; which depression does not appear in any of the femora of the *Din. struthioides*. The popliteal space is triangular and better defined in the *Din. gracilis*; the fibular groove is shorter and less angular, and the rough deep pit above it is smaller. The tibial surface on the inner condyle is relatively smaller.

Tibia.

The same character is repeated on the proximal end of this bone, where the surface applied to the inner condyle is absolutely smaller than in the *Din. struthioides*, although the entire bone, as shown in the subjoined admeasurements, is longer in the *Din. gracilis*: it is also, as the name of the species implies, more slender in proportion to its length.

	<i>D. gracilis.</i>	
	in.	lin.
The entire length of the bone is	23	6
The transverse breadth of its proximal end	5	2
The transverse breadth of its distal end	2	10
The circumference of the middle of the shaft . .	4	6
The fibular ridge extends down the shaft	9	6

But this ridge commences nearly 3 inches below the back part of the proximal end of the bone, nearer the outer side than in the *D. struthioides*: it is interrupted by an oblique smooth tract at the point indicated in the admeasurement, where the medullary artery penetrates the bone; it then reappears about one inch and a half below the interruption, and soon gradually subsides. This second lower part of a fibular ridge is better marked than in the *Din. struthioides*. The relative size and position of the procnemial and ectocnemial ridges are much the same as in the tibia of the *Din. struthioides* and *Din. dromioides*.

Metatarsus.

The difference between the *Din. struthioides* and the *Din. gracilis* is more obvious at first glance in a comparison of their metatarsi than in that of the above described bones; especially to an eye accustomed to the comparison of the metatarsi of the different species. The superior length and slenderness of that bone in the *Din. gracilis*

would at once prevent its being confounded with the metatarsus of the *Din. struthioides*.

The following are the chief dimensions of the bone in question : those of the extremities being approximative by reason of their worn margins :—

	<i>D. gracilis.</i>	
	in.	lin.
Length of the tarso-metatarsus	13	0
Circumference at the middle of the shaft	4	3
Transverse breadth of proximal end	3	4
Transverse breadth of the distal end	4	3
Breadth of the middle of the shaft	1	7
Thickness or antero-posterior diameter of ditto ..	1	2

The depressed surface for the back toe is better marked than in the *Din. struthioides*.

This paper will appear in the Transactions of the Society, illustrated with figures of the bones.

2. DESCRIPTION OF A NEW TANAGER OF THE GENUS CALLISTE. BY PHILIP LUTLEY SCLATER, M.A.

CALLISTE VENUSTA, Sclater. *C. læte cæruleo-viridis : interscapulio alis caudaque nigris, eodem viridi limbatis : fronte, loris, gula summa et auchenio nigris : pileo lateribusque capitis flavis : ventre medio crissoque pallide ochraceis : rostro nigro : pedibus pallidis.*

Long. tota 4·5 ; alæ 2·5 ; caudæ 1·5 poll. Angl.

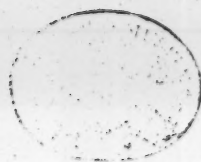
Hab. In Nova Grenada et in rep. Equatoriana provincia Quixos.

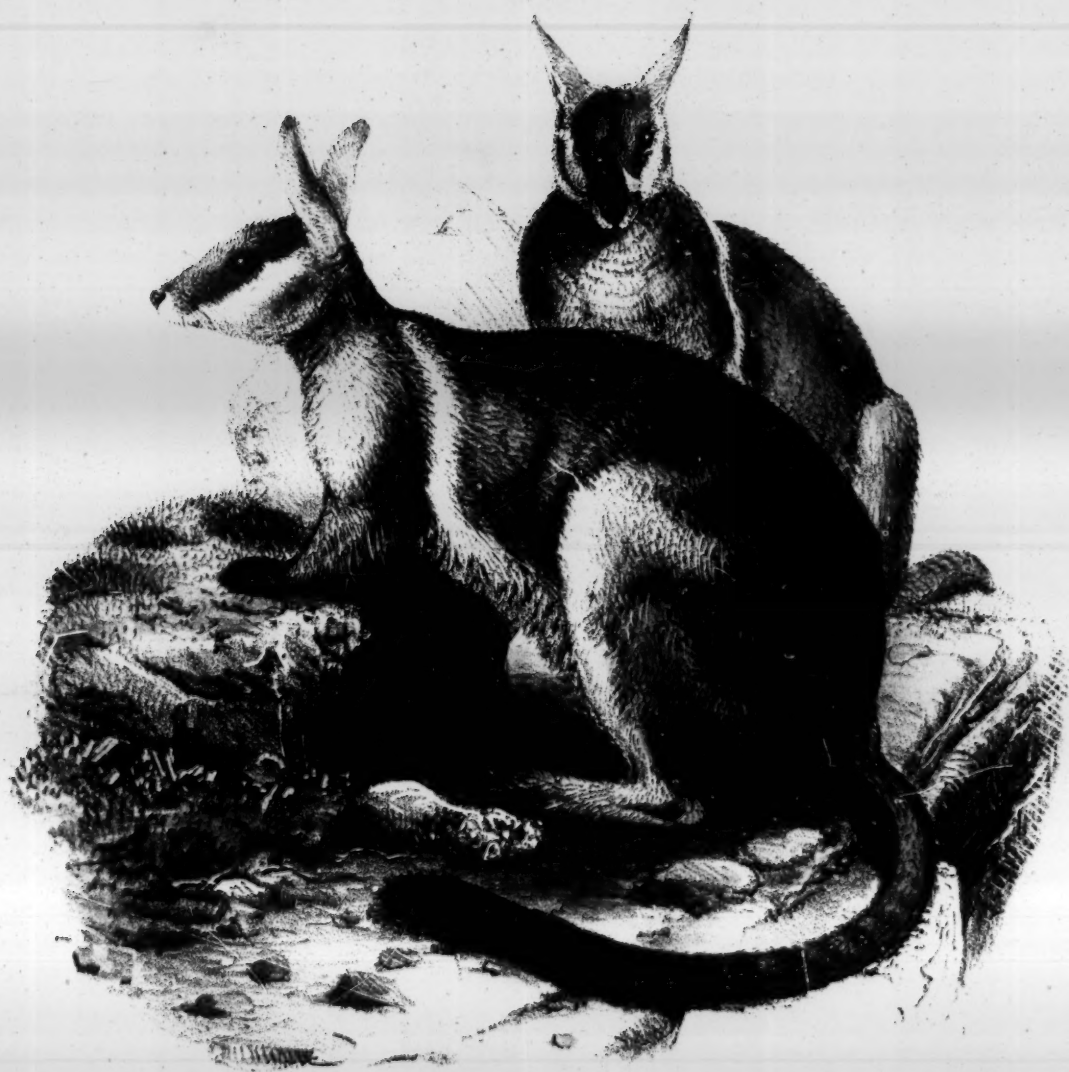
I have been acquainted with this pretty *Calliste* for some time, but have always considered it as the *xanthocephala* of Tschudi, and have described it as such in my "Synopsis of the genus *Calliste*" in the Contributions to Ornithology. But having lately had the opportunity of examining Tschudi's type specimens in the Neuchâtel Museum, I find that his *Callospiza xanthocephala* is not this bird, but the same as my *Calliste lamprotis* (Cont. to Orn. 1851, p. 65). That species closely resembles the present, but may be distinguished by its orange cap and brilliant golden-yellow ear-coverts.

The extreme inaccuracy of Dr. Tschudi's figure, which looks more like this species than the other, must be my excuse for committing this error, in which however I am not alone, as even in the Berlin Museum (where Tschudi's types ought to be known) I have observed the present bird called *xanthocephala*.

Mr. Gould's collection from Quixos contained examples of this species. My own specimens are from Santa Fe di Bogota.

London, Nov. 1851.





MACGILLIWRAY'S WALLABY, *XANTHOPUS*, etc.

3. DESCRIPTION OF A SECOND SPECIES OF THE GENUS *PROCNIAS*. By PHILIP LUTLEY SCLATER, M.A.

I have seen several examples of *Procnias* in collections from New Grenada, and have never doubted their being different from the Brazilian species. But being aware that a second member of the genus had been described by Dr. Cabanis in the Museum Heineanum under the appellation *Procnias Heinei*, I applied that name to these birds without much inquiry. Having lately however had the opportunity of examining the beautiful collection which contains the type of Dr. Cabanis' description, I find that I was in error in so doing. The specimen there designated *Procnias Heinei* is a female or young male of *Calliste atricapilla*, Lafr., and belongs therefore, according to my ideas, to a different family of birds.

I therefore propose the name *Procnias occidentalis* for this new species, which may be distinguished from the older one by its smaller size, the less amount of black on the throat, and by the white belly not extending nearly so high towards the breast.

PROCNIAS OCCIDENTALIS, Sclater. *P. late viridis: fronte anguste et lateribus capitis cum mento gulaque nigris: ventre medio crissoque albis: lateribus nigro radiatis: alis caudaque intus nigricantibus.*

Long. tota 5·0; alæ 3·3; caudæ 2·9 poll. Angl.

Hab. in Nova Grenada.

London, Nov. 1854.

4. DESCRIPTION OF A NEW SPECIES OF *PETROGALE*. By DR. J. E. GRAY, F.R.S., V.P.Z.S., ETC.

(Mammalia, Pl. XXXIX.)

Yellow-legged Rock-Kangaroo, *Petrogale xanthopus*.

Pale brown, minutely grizzled; chin and beneath white: streak on side from the back of shoulder, and along the side of the face under the eye, whitish; dorsal streak narrow, brown; legs, feet, and tail bright yellow; end of tail more bushy and varied with brown.

Australia (Richmond River?)

This species has all the markings as in *Petrogale lateralis*, but differs in being of a much paler and yellower colour, and in the bright yellow colour of the legs and basal part of the tail. It is about the same size as *P. penicillatus*, or rather between it and *P. lateralis*.

There are two specimens of this species (male and female) procured by Mr. Strange.

November 28, 1854.

Dr. Gray, F.R.S., Vice-President, in the Chair.

The following papers were read :—

1. ON A NEW SPECIES OF RHINOCEROS.

By DR. J. E. GRAY, F.R.S., V.P.Z.S., ETC.

The late Mr. Cross, of Exeter Change and the Surrey Zoological Gardens, much prized a specimen of the horn of a Rhinoceros, which for many years formed part of his collection, and which he considered as indicating the existence of a hitherto unrecorded species of that genus.

At the distribution of his effects, it has become the property of the British Museum; and it is so unlike any other horn of a Rhinoceros that has come under my inspection, that I am induced to believe that Mr. Cross was probably right in his conjecture; and



Horn of Cross's Rhinoceros (*Rhinoceros Crossii*).

I am inclined to describe the horn, and name the species *Rhinoceros Crossii*, provisionally, after my late friend, an honour he well deserves, from the unvarying kindness which he showed to all who were willing to make use of the collection in his possession for scien-

tific purposes: this was the more liberal, when we consider that both these institutions entirely depended on public encouragement for their support. But he has yet a greater claim to respect; he was the most enterprising importer and purchaser of animals of modern times, and at the same time most successful in keeping them alive and in health.

Rhinoceros Crossii.

Horn black; trunk very slender, tapering, smooth, rather compressed at the end, curved nearly into a semicircle; base rather thick, subquadrangular, rugose.

Length of the horn along the curve alone	31½ in.
——— of the cord from base to tip	24
Circumference of base	17¼
——— 6 inches above base	7
——— in the middle of horn	4¾
Longest diameter of base	6½
Shortest diameter of base	4¼
Thicker part of base 5½ in. high.	

2. ON TWO NEW SPECIES OF DACNIS, AND ON THE GENERAL ARRANGEMENT ON THE GENUS.

By PHILIP LUTLEY SCLATER, M.A.

1. DACNIS HARTLAUBI, Sclater. *D. turcoso-cærulea*; gula loris et fascia per oculos lata cum cervice laterali et dorso superiore velutino-nigris; alis caudaque minus splendide nigris; secundariorum marginibus externis cæruleis; rostro et pedibus nigris. Long. tota, 4·5; alæ 2·6; caudæ 1·8; poll. Angl.

Hab. In Nova Grenada.

Obs. Similis *D. angelicæ*, sed major, gula nigra, ventre crissoque cæruleis concoloribus neque albis.

I have as yet seen only one example of this *Dacnis*, which is in the fine collection of birds in the Bremen Museum. In its upper colouring it resembles *D. angelica*, but wants the broad black front of that species. The lower plumage comes nearer that of *D. cayana*, but the black does not reach so far down the throat. It slightly exceeds the latter species in size. The bill and legs are black.

2. DACNIS EGREGIA, Sclater. *D. turcoso-cærulea*; fronte gula loris et fascia per oculos lata cum cervice laterali, dorso superiore, alis caudaque nigris; tectricibus alarum minoribus et secundariorum marginibus externe cæruleis; tectricibus subalaribus et ventre medio crissoque cum tibiis flavis.

Hab. In Nova Grenada.

Obs. Species *D. angelicæ* forma crassitie et coloribus fere æqualis, sed ventre crissoque et tectricibus subalaribus flavis nec albis.

I am indebted to Mr. G. R. Gray for allowing me to name this pretty *Dacnis*, of which one specimen was lately acquired by the British Museum from M. Parzudaki of Paris. In its plumage above

it resembles *D. angelica*. A glance, however, at its lower surface, where a bright yellow takes the place of the pure white belly and under wing-coverts of the other species, is sufficient to show its distinctness.

Since I wrote some papers on the genus *Dacnis* in Sir William Jardine's 'Contributions to Ornithology,' Professor Reichenbach of Dresden has treated of this family in his 'Handbuch der Speciellen Ornithologie,' part iv. Professor Reichenbach is unpleasantly surprised, he there says, to find that I have described a *Dacnis cayana*, which is by no means *cayana*, but no other than his third species, *D. cyanomelas*. Now, I admit that my *D. cayana* is nothing more than Prof. Reichenbach's third species, which he calls *cyanomelas*; but I maintain that this very bird is no other than the true *cayana* of Linnæus. There is no such bird in existence as that characterized by Prof. Reichenbach as *cayana*. Brisson's description, it is true, is bad, and Buffon's figure worse, but they can be respectively intended for no other bird than the common black and blue species which is called by Prof. Reichenbach *D. cyanomelas*.

I am in my turn unpleasantly surprised to find that Prof. Reichenbach has removed my *Dacnis cerebicolor* into his genus *Arbelorhina*, with which it has nothing to do; that he has made *Dacnis flaviventris* of D'Orbigny's Voyage a *Conirostrum*, which it certainly is not, and has unnaturally placed the hook-billed *Diglossæ* in the middle of the typical *Dacnidinæ*.

I subjoin a list of the nine species of the genus *Dacnis* with which I am now acquainted, excluding the *atricapilla* of my former synopsis, which Prof. Reichenbach has with some reason made the type of his new genus *Chlorophanes*.

1. DACNIS CAYANA (Lin.) Cont. to Orn. 1851. p. 106. sp. 1.—*D. cayana et cyanomelas*, Reich. Handb. d. Spec. Orn. p. 226 et 227. Ex ins. Trinitatis; Guiana; Cayenna; Brasilia orientali et interiore; Peruvia orientali et Bolivia.
2. DACNIS CÆREBICOLOR, Sclater. Cont. to Orn. 1851. p. 106. sp. 2.—*Arbelorhina* (!) *cærebicolor*, Reich. l. c. p. 236. Ex Nova Grenada.
3. DACNIS HARTLAUBI, Sclater. Ex Nova Grenada.
4. DACNIS ANGELICA, De Filippi. Cont. to Orn. 1851. p. 108. sp. 3.—Reich. p. 227. Ex Guiana; Cayenna; Nova Grenada; Peruvia Cisandeana et Bolivia.
5. DACNIS EGREGIA, Sclater. Ex Nova Grenada.
6. DACNIS FLAVIVENTRIS, D'Orb. et Lafr. Cont. to Orn. 1851. p. 108. sp. 5.—*Conirostrum* (!) *flaviventre*, Reich. l. c. p. 229. Ex Bolivia et Peruvia Cisandeana.
7. DACNIS PULCHERRIMA, Sclater. Rev. et Mag. de Zool. 1853. p. 479. Ex Nova Grenada.
8. DACNIS SPECIOSA (Pr. Max.). Cont. to Orn. 1852. p. 101. sp. 6. Reich. l. c. p. 228. Ex Brasilia et Bolivia.
9. DACNIS PLUMBEA (Latham). Cont. to Orn. 1852. p. 102. sp. 7. Reich. l. c. p. 228. Ex Guiana et Brasilia.





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EXTRUCCION DE LOS COPIES





J. Wolf, lith.

M & N Hanhart, Imp.

MYRMECOPHAGA MARGARITATA, *Sclater*.





J. Wolf, del.

M. & B. Hannart, imp.

(1) *PITHYS ERYTHROPHYS*, *Sclater*.

(2) *HYPOCERUS MELANOCOMA*, *Sclater*.



W. J. Wolf

M. S. B. B. B. B. B.

HYPOGOMPHUS MELANOSTICTA Scholzer

ΕΥΡΩΚΕΝΕΙΩΝ ΜΕΛΑΝΟΥΣΤΙΓΓΑ Σχολία





J. Wolf del.

M. & N. Hanhart Imp.

FORMICIVORA GARDAL

3. DESCRIPTIONS OF SIX NEW SPECIES OF BIRDS OF THE SUB-FAMILY FORMICARINÆ. BY PHILIP LUTLEY SCLATER, M.A.

(Aves, Pl. LXX.—LXXIV.)

1. MYRMECIZA LEUCASPIS, Sclater. (Pl. LXX.)

Supra cinnamomea, subtus alba; vitta laterali utrinque ab angulo oris ad ventrem descendente nigra; lateribus corporis cum ventre imo crissoque olivascenti-cinnamomeis; rostro nigro, mandibula inferiore, nisi basi, alba; pedibus pallidis; orbitis nudis.

Long. tota 5·5; alæ, 2·8; caudæ 1·8.

Hab. In Peruvia, Chamicurros; in Nova Grenada; et Rio Negro, Cobati.

The first specimen of this bird that came into my possession seems by its make to be a Bogota skin. I have lately obtained a second from the MM. Verreaux of Paris, marked 'Peru.' But a more satisfactory locality is Chamicurros, on the Huallaga, one of the confluents of the Peruvian Amazon, whence Mr. Gould has lately received several examples, along with many other interesting birds. Mr. Gould's specimens were collected in the month of October, 1852. Male and female, so labeled, are coloured alike, and noted, "Irides red, skin around the eyes and legs light blue." My Bogota skin, and one in the MM. Verreaux's collection, have the base of the interscapularies light fawn-colour, forming a large blotch, which, however, as is often the case in the birds of this sub-family, is only to be seen when the feathers are raised.

A specimen of this bird in the British Museum is from Cobati, on the Rio Negro.

The upper plumage of the *Myrmeciza leucaspis* is wholly dark cinnamon-colour, and divided from the pure white of the lower surface by a black band. The wing-feathers are blackish within; the twelve rectrices are wholly darkish cinnamon-red. The white of the lower surface narrows as it descends, terminating in a point, and leaving the sides of the belly and crissum dusky olivaceous cinnamon-colour.

2. MYRMECIZA MARGARITATA, Sclater. (Pl. LXXI.)

♂ *Cinereus, subtus dilutior, ventre medio crissoque albescentibus; alis caudaque nigris, rectricum apicibus albis; remigibus secundariis et alarum atque caudæ tectricibus superioribus omnibus maculis magnis, rotundis, albis terminatis.*

♀ *Fusco-brunnea; subtus pallide cervino-rufa; maculis alarum et caudæ clare cervinis neque albis.*

Long. tota 5·3; alæ 2·8; caudæ 1·8.

Hab. In Peruvia, Chamicurros.

My examples of this curiously marked bird were obtained from the MM. Verreaux, and are from the same locality as the preceding species. Mr. Gould's collection from Chamicurros likewise contains specimens of both sexes.

The round spots, which render this bird a very recognizable species, are placed in the wing-coverts at the apex of each feather. In the

secondaries they occupy the end of the outer web, being in the first six nearest the primaries rather small, in the three outer larger and squarer in form. The upper tail-coverts are much produced, and are conspicuously terminated with oval white spots. The tail-feathers are ended only with spots, which are larger on the outer rectrices.

3. *HYPOCNEMIS MELANOLÆMA*, Selater. (Pl. LXXII. fig. 2.)

Cinereus, subtus valde dilutior; interscapularibus basi niveis; loris et oculorum ambitu cum cervice laterali et gutture toto nigris; linea superciliari indistincte albida; tectricibus alarum nigris, fascia terminali alba; remigibus et rectricibus fuscis, externe cinereis; rostro nigro, pedibus pallidis.

Long. tota 5·0; alæ 2·5; caudæ 1·6.

Hab. In Peruvia, Chamicurros.

This species seems nearly allied in form to the bird named *Hypocnemis pæcilonota* by Dr. Cabanis (Orn. Not. in Wieg. Archiv, f. Nat. 1847. p. 213), and I have therefore placed it temporarily in the same genus. My specimen comes, like those of the preceding species, from MM. Verreaux's Peruvian collection; and Mr. Gould has one example marked "*male, irides red*," from Chamicurros, which agrees with mine. From the same Peruvian collection I have also *Hypocnemis pæcilonota* (Cab.) and *H. cantator* (Bodd.), the type of the genus, or a species hardly to be distinguished therefrom.

4. *HYPOCNEMIS MELANOSTICTA*, Selater. (Pl. LXXIII.)

♂ *Ex cinereo olivascens; interscapularibus basi niveis; tectricibus alarum nigris, albo anguste terminatis; loris et regione auriculari nigris; subtus cinereus, gutture toto et ventre medio albis; punctis paucis rotundis in summo pectore nigris; rostro nigro, pedibus pallidis.*

♀ *Supra rufescenti-olivacea, alarum tectricum marginibus et abdomine toto pallide ochraceis; gutture, sicut in mari, albo; mandibula inferiore, nisi apice, alba.*

Long. tota 5·0; alæ 2·5; caudæ 1·6.

Hab. In Peruvia, Chamicurros.

The Peruvian collection of the MM. Verreaux contained several examples of this prettily marked Ant-Thrush, and Mr. Gould has also ♂ and ♀ from Chamicurros. Both sexes show the white blotch at the base of the interscapularies. In form they nearly resemble *H. melanolæma* and *pæcilonota*. Below the white throat, both in male and female, are eight or ten round blackish spots, forming a sort of collar, which renders this species easily recognizable.

5. *FORMICIVORA CAUDATA*, Selater. (Pl. LXXIV.)

♂ *Supra niger albo-striatus; nucha nigra; dorso postico ferrugineo; alis caudaque nigris; tectricibus alarum albo, remigibus autem primariis et secundariis rufo limbatis; rectricum macula terminali alba; subtus albus, sparsius nigro-striatus; ventre crissoque clare ferrugineis.*

♀ *Striis corporis superioris et tectricum alarum marginibus sub-rufescentibus; dorso postico et ventre dilutius ferrugineis; striis pectoris sparsioribus, in gula fere evanescentibus.*

Long. tota 5·8; alæ 2·1; caudæ 3·1.

Hab. In Nova Grenada.

A close ally of *Formicivora ferruginea* (Temm.) and its affines, from all of which, however, it may be distinguished by its extremely lengthened tail. My specimens were purchased in Paris, and are Bogota skins.

6. *PITHYS ERYTHROPHRYS*, Selater. (Pl. LXXII. fig. 1.)

Olivaceo-brunneus, subtus medialiter albus; fronte loris et regione superciliari utrinque clare ferrugineis; loris et regione auriculari nigris; striis quibusdam indistinctis in lateribus pectoris cinereis; alis caudaque nigricanti-brunneis, illius remigibus clare rufo-brunneo limbatis et tectricibus omnibus maculis parvis terminalibus albis.

Long. tota 4·5; alæ 2·7; caudæ 1·7.

Hab. In Nova Grenada.

This is not a true *Pithys*, I think, but I have placed it as such, as being allied to *Pithys leucophrys* ex Nova Grenada. But is the New Grenadian bird really identical with Tschudi's *Pithys leucophrys*?

4. NOTES ON THE HABITS OF SOME INDIAN BIRDS. PART VI.
BY LIEUT. BURGESS.

Family FRINGILLIDÆ.

Sub-Family PYRRHULINÆ.

Genus PYRRHULAUDA.

PYRRHULAUDA CRUCIGER (Temm.).

BLACK-BELLIED FINCH LARK.

This little finch lark is common in Western India, on open plains and grassy plots of ground. It is remarkable for its habit of squatting close on the ground when approached, trusting most probably to the similarity in colour of the plumage of the wings and back with that of the burnt grass and dusty ground to escape notice. This little lark breeds during the months of January and February, building its nest, which is composed of grass, threads, &c., in a hollow in the grassy plains which it inhabits. A nest of this species which was brought to me at the end of January was composed chiefly of grass; it contained two small eggs, of a grey tint, speckled with brown. They have been unfortunately broken. Dr. Jerdon says: "I was fortunate enough to obtain the nest and eggs of this bird very lately (February). The nest is composed of woven thread mingled with some fibres of grass and one or two small fragments of cloth. The sides are hardly raised at all; it

was placed in a slight hollow on the open plain near a river, and contained two eggs, of a slight greenish-grey tint spotted with brown, chiefly at the larger end."

Tribe SCANSORES.

Family PSITTACIDÆ.

Sub-family MACROCERCINÆ.

Genus PALÆORNIS.

PALÆORNIS TORQUATUS, Vigors.

The Red-ringed Parrakeet is by far the most common of its tribe throughout Western India, as probably throughout that continent. They associate in large flocks, doing much injury to fruit-trees and crops of grain. As the grain-crops ripen, they frequent the trees in the neighbourhood, whence they make descents on the fields, retiring to them with the heads of the grain plants, to eat at their leisure. As far as my observations go, they prefer carrying off the ears of the plant to eating the grain in the field. On the approach of night they retire in large flocks to the shelter of thick mango and other trees. This Parrakeet breeds during the month of March, in holes in buildings and trees, laying three or four eggs, of a pure white colour, $1\frac{3}{10}$ ths of an inch in length by 1 inch in width.

PALÆORNIS ALEXANDRI. LARGE RED-RINGED PARRAKEET.

I have never met with this large species, but I see that Dr. Jerdon mentions having obtained four young ones from a hole in a tree, in the month of December.

PALÆORNIS BENGALENSIS. RED-HEADED OR PLUM-HEADED PARRAKEET.

I have had many opportunities of watching and closely observing the habits of these handsome little parrakeets, and am convinced that they are one and the same bird, the red-head being the mark of an advanced, if not mature plumage. In young birds, the plum-colour of the head is much mixed with green, the former colour becoming decided as the birds grow older, and this again giving way to the red head-dress. I have met with these birds in the woody ravines and recesses amongst the lower ranges of hills in the Deccan, also in the thickly-wooded garden-land near the cantonments of Ahmednuggur. In this latter spot I have often watched them in the hope of securing one of the richly-coloured red-headed birds. They fly in flocks like *Palæornis torquatus*, visiting the grain-fields, and carrying off the ears to the neighbouring trees. Their cry is not so loud and harsh as that of their larger brethren, and they may thus be distinguished when not seen. I scarcely ever saw more than two or three red-headed birds amongst a flock of plum-heads. I have not met with the nest or eggs of this species, but

from the very immature plumage of young birds which I shot in January, I should say that they breed in November and December.

Family CUCULIDÆ.

Subfamily CUCULINÆ.

Genus EUDYNAMYS.

EUDYNAMYS MACULATUS. BLACK CUCKOO OR KOWEEL.

Not having met with the nest and eggs of this cuckoo, I am indebted to Dr. Jerdon's catalogue for the following note on the subject:—"The koweel (as is well known in India) lays its eggs in the nest of the common crow (*C. splendens*), from which it dislodges the crows' eggs. It is said always to choose this crow's nest. On one occasion I obtained an egg from the female koweel; it was of a dirty blue colour, marked with some dusky spots."

Genus CENTROPUS.

CENTROPUS PHILIPPENSIS (Cuv.). LARK-HEELER CUCKOO.

This very common cuckoo, called by many Europeans in India "the Malabar Pheasant," is a bird remarkable for its appearance, and peculiarly loud cry. Its bright chestnut wings and long tail render it conspicuous, and from the length of the latter, the name of Pheasant has doubtless been applied to it. Like others of its kind, it is fond of thickets and hedges, under the latter of which it may often be observed walking about and picking up its food, which consists of lizards, seeds and insects. Though classed in the family of the *Cuculidæ*, this bird differs from *Cuculus canorus* and *Eudynamys maculatus* in one marked respect, viz. that it does not deposit its eggs in the nest of another bird. Like the yellow-billed American cuckoo, *Coccyzus americanus* (Jenyns), it builds its own nest, but whether, as Mr. Yarrell mentions, in the case of the American bird, its egg is ever found in another bird's nest, I cannot say: I never heard of such a case.

The lark-heeler cuckoo breeds in the spring of the year, as early as January and as late as April. It builds its nest in hedges and trees; the nest is composed of grass and small twigs. The eggs, generally three in number, are of an opaque white, $1\frac{1}{2}$ inch in length by 1 inch and $\frac{2}{10}$ ths in width. The exterior of the shell is of a peculiarly soft, chalky texture, which soon becomes scratched and stained.

Tribe TENUIROSTRES.

Family CINNYRIDÆ.

CINNYRIS ORIENTALIS, Frankl. PURPLE HONEYSUCKER.

As I am anxious to make these papers as complete as possible on the nests and eggs of the birds of Western India, I have taken the No. CCLXXVI.—PROCEEDINGS OF THE ZOOLOGICAL SOCIETY.

liberty of transcribing some of the observations made by Dr. Jerdon of the Madras cavalry, in cases where I have not been able to obtain information. With regard to the nest and eggs of this honey-sucker he says: "I have lately (February) seen the nest of this pretty little bird close to a house in Jaulnat. It was commenced on a thick spider's web, by attaching to it various fragments of paper, cloth, straw, grass, and other substances, till it had secured a firm hold of the twig to which the web adhered, and the nest suspended on this was then completed by adding other fragments of the same materials. The hole is at one side near the top, and has a slight projecting roof or awning over it. The female laid two eggs, of a greenish-grey tinge, spotted with dusky. The first nest it made was accidentally destroyed after two eggs had been laid, and the couple immediately commenced building another in a small tree at the other side of the door, and, as in the first instance, commenced their operations on a fragment of a spider's web. They reared two young ones from the nest."

5. LIST OF MALAYAN BIRDS COLLECTED BY THEODORE CANTOR, ESQ., M.D.*, WITH DESCRIPTIONS OF THE IMPERFECTLY KNOWN SPECIES. BY FREDERIC MOORE, ASSIST. MUS. EAST INDIA COMPANY.

1. GYPS BENGALENSIS.

Vultur bengalensis, Gmelin. (young).

Vultur Changoun, Daudin. (adult).

Vultur leuconotus, Gray and Hardw. Ill. Ind. Zool. i. t. 14 (adult).

Gyps bengalensis, Gray and Hardw. Ill. Ind. Zool. i. 15 (young).

Gould, Birds of Asia, t. 35.

Vultur indicus, Scopoli. ? Sonn. Voy. t. 105?

A specimen agreeing with those collected in the Dukhun by Col. Sykes.

2. HIERAX CÆRULESCENS.

Falco cærulescens, Linn. Horsf. Temm. Pl. Col. 97.

Falco fringillarius, Drapiez, Dict. Class, t. 21.

Hierax malayensis, Strickland. (Edw. Birds, t. 108).

ALLAP OF ALLAP ALLAP of the Javanese (Horsf.).

SEEAP BELANG of the Malays in Penang (Cantor).

"The Indian species of these tiny Falcons (which weigh but a few ounces) are trained for hawking in the Upper Provinces, being flown at quails and other game of corresponding size, as I have been informed," remarks Mr. Blyth, "by different eye-witnesses of the sport." Captain Mundy, in his 'Sketches of a Tour in India,' ii. p. 25, thus describes it:—"We had also some amusing sport with another kind of falcon, a very small bird, perhaps barely so large as a thrush, and its prey was proportioned to its strength. It is flown

* Presented to the Museum of the Honourable East India Company, April 1854.

at quails, sparrows, and others of the like calibre. The mode of starting it is different from that used with any other hawk. The falconer holds the little well-drilled savage within the grasp of his hand, the head and tail protruding at either end, and the plumage carefully smoothed down. When he arrives within twenty or thirty yards of the quarry the sportsman throws his hawk, much as he would a cricket-ball, in the direction of it. The little creature gains his wings in an instant, and strikes his game after the manner of the Bhause (*Astur palumbarius*)."

3. ELANUS MINOR, Bonap. C. G. Av. p. 22 (1849).

Elanus melanopterus of India and Malasia, Auctorum.

ANGKAI-ANGKAL of the Javanese (Horsf.).

KUPASEE and CHANWA of the Hindoos (Jerdon).

Mr. Hodgson gives the following notice of the habits of this bird. "The *Chanwa*, or *Black-wing*, quests chiefly in the morning and evening, feeding upon small birds, insects and mice. It does not usually seize upon the wing, though its hunting be, for the most part, by continuous questing. Commonly, it is seen skimming the cultivation like a *Circus*, occasionally poising itself on the wing for the purpose of getting a distincter view of some mouse, small bird, or insect which has stirred on his beat, and upon which, when clearly perceived, it stoops perpendicularly with the speed of lightning. After a while, it will resort to some low roost, and, when relieved, commence another excursion, or, perchance, sit and watch there for its prey. Its forward flight is easy, low, and silent, but very effective in evolution, when exertion is required to capture such nimble game as mice, which constitute its ordinary food. It frequently whips off insects from the stalks of standing grain, and this feat is, of course, accomplished on the wing. I have also seen it pursue cuckoos and sparrows with uncommon energy, but I never witnessed it strike a bird in the air. The *Chanwa* doubtless can, and sometimes does, seize its feathered prey on the wing."

4. MILVUS GOVINDA, Sykes, P. Z. S. 1832, p. 81.

Milvus melanotis, Temm. et Schleg., Faun. Jap., t. 5.

Milvus cheele, Jerdon, Madras Journ. x. p. 71.

Haliaëtus lineatus, Gray's Ill. Zool., i. t. 18.

Milvus indicus et *subhimalayanus*, Hodgson.

The Govinda kite.

CHEEL or CHIL of the Hindoos (Hamilton).

From Pinang.

5. SPIZAËTUS LIMNÆËTUS.

Falco limnæëtus, Horsfield. (Zool. Res. in Java).

Limnæëtus Horsfieldii, Vigors, Mem. Raffles App. p. 649.

Astur unicolor, Temminck, Pl. Col. 134.

WURU-KAWA of the Javanese (Horsf.).

6. SPIZAËTUS CIRRHATUS.

Falco cirrhatus, Gmelin.

Falco caligatus, Raffles, Trans. Linn. Soc. XIII. p. 278.

Falco niveus, Shaw. Temm., Pl. Col. 127.

Nisaetus nipalensis, (crestless var.), Hodgson.

Nisaetus pallidus, Hodgson. (jun.)

Falco cristatellus, Temminck, Pl. Col. 282.

Falco Lathamii, Tickell (nec Gray).

LANG TAMBIKAR of the Javanese. (Horsf.)

SHAL BAZ and SÀDÀL of the Hindoos. (Elliott.)

7. ACCIPITER VIRGATUS.

Falco virgatus, Reinwardt. Temm., Pl. Col. 109.

Accipiter besra et *A. fringillarius*, Jerdon, Catal.

Accipiter affinis, Hodgson.

Acc. Dussumieri, Sykes (nec Temm.).

A single specimen, in the young state, was obtained at Pinang.

8. HEMATORNIS BACHA.

Falco bacha, Daudin. (Levaill., Ois. d'Afr., t. 15.)

Spilornis bacha, G. R. Gray.

Falco bido, Horsfield.

BIDO of the Javanese. (Horsf.).

I have compared specimens of Dr. Horsfield's *F. bido* with Levaillant's figure, and have found them to agree in every respect.

9. PANDION ICHTHYAËTUS.

Falco ichthyaëtus, Horsfield. (Zool. Res. in Java, t. 34.)

Haliaëtus plumbeus, Hodgson.

Ichthyaëtus bicolor, G. R. Gray.

Ichthyaëtus Horsfieldii (Hodgs.), Blyth.

Ichthyaëtus hucarius, Hodgson.

The Marine Eagle.

JOKOWURU of the Javanese (Horsf.).

MADHUYA of the Hindoos (Hamilton).

MATCH MOROL (*i. e.* 'fish-tyrant') of the Bengalese (Blyth).

"This bird is found in Java near lakes, or on the banks of large rivers. It is by no means generally distributed. I met with it in two situations only, one near the banks of the river of Kediri, in the eastern district, and the other near the middle of the island, on the hills of Prowoto, about twenty miles south-east of Samarang. Here a pair of these birds had established themselves for several years near a village on the confines of an extensive lake formed by the accumulation of water during the period of rains, and distinguished by the name of Rawa (lake) of Damak. Their nest was built on the top of a large tree, and was constructed in a rude manner, of branches of trees; the branches which were placed on the exterior were more than an inch in diameter; the inside was lined with small twigs; it was irregularly round, and very slightly excavated. The birds were surprised during the period of incubation. The male bird, on being caught in a snare, permitted itself to be seized by the native without making any resistance. When brought to me, lying in the arms of

the man, apparently conscious of its situation, and without making use of its claws or bill, or exerting any effort to extricate itself, it suffered itself to be handled and examined very patiently. On being placed in a large cage, it made a few efforts in the beginning to set itself at liberty, but finding them ineffectual, it soon desisted, and by its calmness and dignity of manners, exhibited a resemblance to the more noble species of falcons. During the first days of its confinement it refused food altogether, but on becoming hungry, a fish was quietly placed in its bill, which was finally swallowed with great caution; and it soon took greedily the fishes which were liberally supplied. Its usual attitude was with the bill half open, and it appeared to have frequent thirst, and took up copious draughts of water. The pair of birds which I obtained on these hills had been carefully observed by the natives for several years. Their cry resembled that of the osprey. They lived exclusively on fishes. They never attacked fowls or other animals. They daily resorted to the lake above mentioned, over which, suspended in the air, or sailing slowly along, they watched their prey. On observing a fish, they darted on it with impetuous velocity; more rarely they pursued a more passive conduct, and watched the lake from the trees in its neighbourhood." (Horsfield.)

10. *PANDION HUMILIS*, Temminck et Müller, Verh. over de Nat. Gesch., &c., t. 6.

Ichthyætus nanus, Blyth, J. A. S. Beng. 1842, p. 202, 1843, p. 304.

"Allied to *P. ichthyætus*, but considerably smaller, being under 2 feet in length; the wings 14 inches, and tail, which is a little wedged, $8\frac{1}{2}$ inches; bill over curve, including cere, $1\frac{7}{8}$ ths; and $1\frac{5}{8}$ ths from tip of upper mandible to gape; tarse $2\frac{1}{4}$ inches; the talons large, and all (as in *P. ichthyætus*) completely rounded, with the exception of that of the middle toe; 4th and 5th primaries equal and longest, a little exceeding the 3rd and 6th."

11. *HALIAËTUS LEUCOGASTER*.

Falco leucogaster, Gmelin.

Falco blagrus, Daudin.

Falco dimidiatus, Raffles.

Haliaëtus sphenurus, Gould. (young.)

Ichthyætus cultrunguis, Blyth. (the semi-adult.)

Blagrus leucogaster, Blyth.

Falco maritimus, Gmelin.

The Maritime Eagle, Latham. (the adult.)

Kampamaur Eagle, Latham. (the semi-adult.)

SAMP-MAR ('snake-killer') of the Hindoos (Blyth).

LANG-LAUT of the Malays of Sumatra (Raffles).

12. *HALIASTUR INDUS*.

Falco indus, Boddaërt.

Falco ponticerianus, Gmelin.

Dentiger ponticerianus, Hodgson.

Milvus rotundicaudus, Hodgson.

Brahminy Kite of Europeans in India.

LANG BONDOL of the Malays of Sumatra (Raffles).

ULUNG of the Javanese (Horsf.).

"Europeans have given this bird the appellation of Brahminy Kite; which originates in having observed that the Hindoos attach superstitious ideas to it. Among the Mahommedans there is a prevalent notion that when two armies are about to engage, the appearance of one of these birds over either party prognosticates victory to that side." (Pearson.)

13. *ATHENE RADIATA*.

Strix radiata, Tickell, J. A. S. Beng. 1833, p. 572.

Strix erythroptera, Gould, P. Z. S. 1837, p. 136.

Noctua perlineata, Hodgson, J. A. S. Beng. 1837, p. 369.

Athene undulata, Blyth, J. A. S. Beng. 1842, p. 457.

JUNGLEE CHOOGHD of the Hindoos (Jerdon).

A single specimen of this pretty little owl was obtained at Keddah (Malayan Peninsula), agreeing in every respect with those obtained from India. This is, I believe, the first indication of its having been found in the Malayan Peninsula.

14. *NINOX SCUTULATUS*.

Strix scutulata, Raffles, Trans. Linn. Soc. XIII. p. 280 (1821).

Strix hirsuta, Temminck, Pl. Col. 289.

Strix lugubris, Tickell, J. A. S. Beng. 1832, p. 457.

Ninox nipalensis et *N. Jeridius*, Hodgson.

Athene malayensis, Eyton.

Strix hirsuta japonica, Schlegel, Faun. Japon. t. 9 B.

Strix infausta, Hamilton, MSS.

KAL PECHAK of the Bengalese (Hamilton).

CHOOGHD BESRUH of the Hindoos (ditto).

KHENG-BOOP of the Arracanese (Blyth).

RAJA WALI of the Malays.

"Irides king's-yellow; bill black; feet reddish." (Cantor.) Also inhabits N. India and Tenasserim.

15. *EPHIALTES LEMPIJI*.

Strix Lempiji, Horsfield, Trans. Linn. Soc. XIII. p. 140.

Strix noctula (Reinw.), Temminck, Pl. Col. 99.

Scops javanicus, Lesson.

Scops lettia, Hodgson.

Scops lettoides, Jerdon.

Scops griseus, Jerdon.

LEMPIJI of the Javanese (Horsf.).

THARKAVI CHOOGHD seu LATTYA CUDYAL of the Nepalese (Hodgs.).

16. *BUBO ORIENTALIS*.

Strix orientalis, Horsfield, Trans. Linn. Soc. XIII. p. 140.

Strix sumatrana, Raffles.

Strix strepitans, Temminck, Pl. Col. 174. 229. (*jun.*)

Huhua nipalensis, Hodgson.

Huhua pectoralis, Jerdon.

HUHU and HUH CHIL of the Nepalese (Hodgs.).

OOMAN of the natives of Malabar (Jerdon).

"Iris dull brown; bill dull yellow; feet yellowish buff." (Cantor.)

A single adult specimen of this rare species was obtained at Malacca.

17. KETUPA JAVANENSIS, Lesson, Trait. d'Orn. p. 114 (1831).

Strix ketupa, Horsfield, Trans. Linn. Soc. XIII. p. 141 (1821).

Strix ceylonensis apud Lath. et Temm., Pl. Col. 74.

BLO KETUPA of the Javanese (Horsf.).

TAMBA seu KETOMBO RATANAPYE; HANTA; BURONG PELOW of the Malays (Blyth).

"Iris round, brilliant yellow." (Cantor.)

Common at Pinang.

18. PHOLIDUS BADIUS.

Strix badia, Horsfield, Trans. Linn. Soc. XIII. p. 139 (Zool. Res. in Java, t. 36. Temm., Pl. Col. 318.).

WOWO WIWI or KALONG WIWI of the Javanese (Horsf.).

BURONG ANTOO, Pinang. Cantor.

"The WOWO-WIWI is rarely met with in Java. It never visits the villages, but resides in the closest forests, which are the usual resort of the tiger. The natives even assert that it approaches this animal with the same familiarity with which the Jallak (*Pastor Jalla*, Horsf.) approaches the buffalo, and that it has no dread to alight on the tiger's back. It is never seen in confinement." Horsfield. It also inhabits Nepal, Sikim, Assam and Arracan.

19. SYRNIUM SELO-PUTO.

Strix Selo-puto, Horsfield, Trans. Linn. Soc. XIII. p. 140.

Strix pagodarum, Temminck, Pl. Col. 230.

SELO-PUTO of the Javanese (Horsf.).

A single specimen obtained at Pinang.

20. MEROPS PHILIPPINUS, Linnæus.

Merops javanicus, Horsfield, Trans. Linn. Soc. XIII., p. 171.

Merops Daudinii, Cuvier, Règ. An. I. p. 442.

Merops typicus, Hodgson, Gray's Zool. Misc. (1844) p. 82.

KACHANGAN of the Javanese (Horsf.).

BIRI BIRI of the Malays in Sumatra (Raffles).

21. MEROPS BADIUS, Gmelin.

Merops castaneus, Latham, Ind. Orn. i. p. 273.

Merops bicolor, Boddaërt.

Merops sumatranus, Raffles.

? *Merops Latreillei*, Vieillot (Levaill. Guep. t. 12).

? *Merops cyanopygius*, Lesson, Tr. d'Orn. p. 238.

The Chestnut Bee-eater.

22. *MEROPS QUINTICOLOR*, Vieillot, N. Dict. d'H. N. XIV. p. 20.
(Levaill. Guep. t. 15.)

Merops Leschenaulti, Vieillot.

Merops urica, Horsfield, Trans. Linn. Soc. XIII. p. 172; Swains.
Zool. Ill. n. s. t. 8.

PIRIK of the Javanese (Horsf.).

Found also in India and Ceylon.

23. *NYCTIORNIS AMICTA*.

Merops amictus, Temminck, Pl. Col. 310; Gould, Birds of Asia.

Nyctiornis amicta, Swainson, Zool. Ill., 2nd Ser. t. 56.

KAY CHUA of the Malays (Eyton).

24. *HIRUNDO PANAYANA*, Gmelin.

H. gutturalis, Scopoli.

H. javanica, Sparmann, Mus. Carls. IV. t. 100.

H. jewan, Sykes, P. Z. S. 1832, p. 83.

H. rusticoides, Kuhl.

H. rustica, Meyen. (Temm. Pl. Col. 83. f. 2.)

25. *HIRUNDO DOMICOLA*, Jerdon, Madras Journ. XIII. p. 173.
(1844).

Hirundo javanica apud Shaw, Zool. X. p. 101; Lath. Gen. Hist.
VII. p. 300.

Bungalow Swallow, of residents in the Neilgherries (Jerdon).

Forehead, chin, throat and upper part of breast deep rufous;
plumage above glossy blue-black; beneath dusky cinereous; wings
and tail dusky black, the latter with a white spot near the tip on all
but the two centre feathers; under tail-coverts blackish, edged with
white. Bill and legs black.

Length $4\frac{3}{4}$ inches; of wing $4\frac{2}{10}$ ths; tail (very slightly forked) 2;
bill to front $\frac{2\frac{1}{2}}{10}$ ths, to gape $\frac{5}{10}$ ths; and tarsus $\frac{3\frac{1}{2}}{10}$ ths of an inch.

"Common in the Neilgherries," remarks Mr. Jerdon, [and also
in the Malay countries,] "and builds its nest in retired or deserted
bungalows, out-houses, &c., making a small mud nest, quite open at
the top, and profusely lined with feathers."

26. *CYPSELUS VITTATUS*, Jardine and Selby, Ill. Orn. 2nd Ser.
t. 39.

Cypselus australis apud Blyth, Journ. As. Soc. Beng. XI. p. 886.

27. *CYPSELUS SUBFURCATUS*, Blyth, Journ. As. Soc. Beng.
XVIII. p. 807. (1849.)

Cypselus affinis apud Strickl. P. Z. S., 1846, p. 99.

"Resembles *C. affinis*, but is larger, deeper coloured, with the
tail-feathers conspicuously more pointed, and the outermost mea-

suring a quarter of an inch longer than the middle ones. Wing $5\frac{1}{4}$ inches; tail $2\frac{1}{2}$ th. General colour much blacker than in *C. affinis*, the upper and lower tail-covers being quite black; the white band on the rump is narrower and less purely white; and the white of the throat is also less pure."

"The nidification is also remarkably different," says Mr. Blyth; "several pairs inhabiting a continuous common nest, which is affixed to an eave in the manner of that of *Chelidon urbica*, or of *Cyp. affinis*; the latter species, however (so far as we have observed), so placing its nest as to be concealed, or at least rendered inconspicuous by a rafter or other object in front." According to the account received from Col. Low, a colony of *Cyp. subfurcatus* inhabited the verandah of a house in the island of Pinang. "They began with a pair, and now compose a harmonious family of about sixteen or eighteen. The nests are fastened to the beam much in the same way as the nest of the swallow (*Chelidon urbica*?), but their nidificatory habits differ from those of the latter birds by their running two, three, or more nests into one. There were about six or eight birds in one specimen of the nest, which had three apertures. They seem to keep a regular watch at night, for on the least noise the sentinel pipes a little, and is then followed by all the rest. They lay two eggs, and are not migratory,—at least my friends are not, for they have been domiciled upwards of a year where they are now. The nest above noticed is a beautiful fabric in its way, remarkably light and compact; being composed of feathers and other light substances firmly bound together by a good deal of the saliva-like gluten. Several shed primaries and other feathers of the birds themselves, doubtless cast within the nest, are thus fastened in to add to the lining. The only aperture visible, now that the nest has been cut away from its place of attachment, is a somewhat prolonged entrance at one extremity; and there appear to be but two depressions adapted for the reception of eggs, which renders it probable that several of its inhabitants were the young of a former brood, or perhaps broods. The total length of the interior is 12 inches, by nearly 5 inches where broadest; and this capacity would indicate that it is intended as much for a habitation for a number of the birds as for the ordinary purpose of incubation. Procuring some nests of *Cyp. affinis* for comparison, the size of these also indicates the fact that they are similarly inhabited; but it would appear that there is no convenience in them for more than one pair of birds to incubate. They consist of a much thicker and heavier mass of material than the nest of *C. subfurcatus*; but where two are built in contact, the wall of separation is thin, though we suspect it will be always found intact and completely separated. During the night *C. affinis* is equally vigilant with its Malayan representative. The latter would appear to be the common house Swift of the Malayan peninsula, taking the place of *C. affinis* of India; while *C. vittatus* would seem to be exclusively a mountain species, and which has been obtained by Capt. Hutton from the Tyne range of mountains near Simla."

Common at Pinang.—Cantor.

28. ACANTHYLIS GIGANTEUS.

Cypselus giganteus, Temminck, Pl. Col. 364.

Acanthylis caudacuta, apud Blyth. Catalogue.

"Iris blackish brown; bill black; feet dirty cobalt."—Cantor.

Inhabits the Neilgherries, Ceylon, Arakan, and the Malayan peninsula.

29. BATRACHOSTOMUS AURITUS.

Podargus auritus, Vigors, Griff., transl. of Cuv. An. Kingd. 11. t. p. 114; Appendix to Mem. of Sir T. S. Raffles, p. 653.

Batrachostomus auritus, Gould, Icones Avium, t. 7.

Bombycistomus Fullertonii, Hay, Journ. A. S. Beng. X. p. 574 (1841).

30. BATRACHOSTOMUS STELLATUS.

Podargus stellatus, Gould, P. Z. S. 1837, p. 43, also, I believe, the *Podargus crinifrons*, Temminck, Mus. Ludg. Bonap. Consp. Gen. Av. p. 57.

I have compared the specimens of this bird in Mr. Gould's collection with those collected in Malacca by Dr. Cantor, with which they quite agree. This is quite distinct from *B. javanensis*, Horsf.; *P. cornutus*, Temm.

31. LYNCORNIS TEMMINCKI, Gould, Icones Avium, t. 6.

Eurostopodus Temmincki, G. R. Gray, Gen. of Birds.

Caprimulgus pulcher, Hay, Madr. Journ. XIII. pt. II. p. 161. (1844.)

Caprimulgus imberbis, Temm. MSS.

"Crown of the head greyish brown, minutely barred with black, many of the feathers having a black spot at the apex; throat barred with rich chestnut and black; round the neck a collar, which is white anteriorly, and buff posteriorly; egrets short and black; chest blackish, freckled with chestnut; back ornamented with tints of chestnut and fawn, spotted and irregularly freckled with black; quills blackish brown, with nearly obsolete bars of chestnut; under-surface pale buff mingled with black, which latter colour occupies the base of each feather; tail brownish black, with interrupted bars of chestnut. Bill and legs brown."

Length 10 inches; of wing 8; tail $5\frac{1}{2}$; bill to gape $1\frac{1}{8}$ th, and tarsus $\frac{1}{2}$ an inch.

32. CAPRIMULGUS MACROURUS, Horsfield, Trans. Linn. Soc. XIII. p. 142.

33. CAPRIMULGUS INDICUS, Latham. Jerdon, Ill. Ind. Orn. t.

24. Gray, Ill. Ind. Zool. I. t. 34. f. 1.

Caprimulgus cinerascens, Vieillot.

Caprimulgus saturator, Hodgson.

Caprimulgus innotatus, Hodgson (jun.).

Specimens from Malacca agreeing with those obtained at Nepal.

34. *EURLAIMUS JAVANICUS*, Horsfield, Trans. Linn. Soc. XIII.
p. 170. Zool. Res. in Java, t. 5. (Gould, Birds of Asia.)
Eurlaimus Horsfieldii, Temminck, Pl. Col. 130, 131.
TAMPLANA LILIN of the Malays. (Eyton.)
Common at Malacca.

35. *EURLAIMUS OCHROMALUS*, Raffles, Trans. Linn. Soc. XIII.
p. 297; Gould, Birds of Asia.
Eurlaimus cucullatus, Temminck, Pl. Col. 261.
Eurlaimus Rafflesii, Lesson.
TAMPLANA QILIN of the Malays. (Blyth.)

36. *CORYDON SUMATRANUS*.
Coracias sumatranus, Raffles, Trans. Linn. Soc. XIII. p. 303.
Corydon sumatranus, Strickland. (Gould, Birds of Asia.)
Eurlaimus corydon, Temminck, Pl. Col. 297.
Corydon Temminckii, Lesson, Man. d'Orn. i. p. 177.
KUNG-QUAIT of the Malays. (Blyth.)

37. *CYMBIRHYNCHUS MACRORHYNCHUS*.
Todus macrorhynchus, Gmelin. (Gould, Birds of Asia.)
Todus nasutus, Latham. (Temm. Pl. Col. 154.)
Eurlaimus lemniscatus, Raffles, Trans. Linn. Soc. XIII. p. 296.
BURONG PALANO or TAMPALANO of the Malays in Sumatra.
(Raffles.)

BURONG UJUN. (Eyton.)
"This species," says Sir Stamford Raffles, "is found in the interior of Sumatra, frequenting the banks of rivers and lakes, and feeding on insects and worms. It builds its nest pendent from the branch of a tree or bush which overhangs the water, and is said to lay two eggs."

Mr. Blyth also remarks: "This bird is common in Tenasserim in watery situations, and suspends its nearly globular nest, which is constructed of small twigs, from the branches of trees growing directly out of the water. The eggs are four in number, and pale spotless blue. The beak and eyes are very fine blue, the former fading within a day or two after death."

38. *CALYPTOMENA VIRIDIS*, Raffles. Horsf. Zool. Res. in Java.
Temm. Pl. Col. 216.
Calyptomena Rafflesii et *C. caudacuta*, Swainson.
BURONG TAMPO of the Malays in Sumatra. (Raffles.)
SIEBO of the Malays. (Eyton.)
Not uncommon at Pinang.

39. *EURYSTOMUS ORIENTALIS*.
Coracias orientalis, Linnæus.
Eurystomus cyanicollis et *E. fuscicapillus*, Vieillot.
Eurystomus calornyx, Hodgson.
TIONG BATU of the Malays in Sumatra. (Raffles.)
TIONG LAMPAY of the Malays. (Eyton.)

40. DACELO PULCHELLA, Horsfield, Trans. Linn. Soc. XIII. p. 175. Zool. Res. in Java (with a figure of the male).

Dacelo buccoïdes, Temminck, Pl. Col. 277 ♂. 586 ♀.

TENGKE-WATU of the Javanese (Horsf.), and KAING KAING KIMBA of the Malays (Eyton).

"This is an extremely rare and local bird," says Dr. Horsfield, "and I found it once only, in a low range of hills, about twenty miles south-east of Samarang, known in the central parts of the island (Java) by the name of the hills of Prowoto. Here a single [male] bird was obtained in the forest."

Several examples of both sexes were collected at Malacca.

41. HALCYON LEUCOCEPHALUS.

Alcedo leucocephala, Gmelin.

H. javanica, Shaw.

H. Gurial, Pearson, J. A. S. Beng. X. p. 633.

H. brunniceps, Jerdon, Madr. Journ. Lit. and Sci. XIII. p. 143.

The white-headed and Gurial Kingfishers of Latham.

TENGKEBUTO of the Javanese (Horsf.).

BANG-KAKO of the Malays of Sumatra (Raffles).

BURONG-KAKA of the Malays (Eyton).

GURIAL of the Bengalese (Buch. Hamilt.).

MALAH-POYMAH, i. e. "jungle kingfisher," of the inhabitants of Malabar (Jerdon).

I do not see sufficient distinction between the Malayan and Indian birds to warrant their separation.

42. HALCYON ATRICAPILLUS.

Alcedo atricapilla, Gmelin.

H. pileata (Bodd) apud G. R. Gray, Gen. of Birds, i. p. 79.

BURONG UDANG of the Malays of Sumatra (Raffles).

This would appear to be tolerably common at Pinang, at which place this species was collected. Also inhabits India.

43. HALCYON SMYRNENSIS.

Alcedo smyrnensis, Linnæus. Strickland, Ann. Nat. Hist. (1842), p. 443.

Alcedo fusca, Boddaërt.

Found at Pinang and Malacca.

44. TODIRAMPUS VARIUS.

Halcyon varia, Eyton, P. Z. S., 1839, p. 101. Blyth, J. A. S. Beng. XV. p. 11.

"Adult male (and perhaps the adult of either sex) have the cap green, rufescent on the forehead, and margined posteriorly with verditer; a broad black stripe commences at the lores, and meets its opposite behind; above this is a very large rich purplish-blue moustache, commencing at the base of the lower mandible; the nape and breast are brilliant ferruginous, paling on the throat and belly, and the mantle, wings and tail, are deep purplish-blue, each feather touched with ultramarine-blue on the wings, while the rump and

upper tail-coverts are vivid verditer ; bordering the ferruginous of the nape is a band of deep black. Bill dusky above, the rest apparently yellow ; and less probably coral-red. The young have the mantle and wings dark-green, with a terminal pale fulvous spot on each feather, imparting a pretty speckled appearance."

Two examples of this fine kingfisher were collected at Malacca.

45. *TODIRAMPHUS COLLARIS*.

Alcedo collaris, Scopoli.

Halcyon collaris, Swainson, Zool. Ill. t. 577.

Todiramphus collaris, Blyth, Catal.

Alcedo chlorocephala, Gmelin.

Alcedo chlorocephala et *A. sacra*, Horsfield, Trans. Linn. Soc. XIII. p. 174.

Todiramphus occipitalis, Blyth, J. A. S. Beng. XV. pp. 23. 51.

The white-collared kingfisher.

TENGKE seu TENGKE-CHEGER of the Javanese (Horsf.).

NAC-THA-CHÓP-FOU of the Siamese (Finlayson).

"Irides dark brown ; legs shining greenish grey."—Cantor. A single specimen procured at Pinang.

46. *ALCEDO BENGALENSIS*, Gmelin.

RAJA-WHODAN of the Malays.

From Pinang.

47. *ALCEDO MENINTING*, Horsfield, Trans. Linn. Soc. XIII. p. 172. Temm. Pl. Col. 239. f. 2.

Alcedo asiatica, Swainson, Zool. Ill. n. s. t. 50.

MENINTING of the Javanese (Horsf.).

BINTI of the Malays of Sumatra (Raffles).

Three examples of this exceedingly beautiful species procured at Malacca.

48. *CERYLE RUDIS*.

Alcedo rudis, Linnæus.

Ispida bicincta et *I. bitorquata*, Swainson.

A single specimen from Keddah.

49. *CEYX TRIDACTYLA*.

Alcedo trydactyla, Linnæus, Mant. (1771), p. 524. Pallas, Spic. Zool. vi. t. 2. f. 1.

Ceyx tridactyla, Cuvier, Règ. Anim. (1817), p. 417. Jerdon, Ill. Ind. Orn. t. 25. Strickl. P. Z. S. (1846), p. 99.

Alcedo purpurea, Gmelin.

Alcedo rubra, Boddaert.

Alcedo erythaca, var. β . Latham.

Ceyx luzoniensis, Stephens.

Ceyx microsoma, Burton.

Sonn. Voy. Ind. t. 32. Buff. Pl. Enl. 778, f. 2. Penn. Gen. Birds, t. 5.

RAJA WHODAN of the Malays (Eyton).

DEIN-NGYEEN of the Arracanese (Blyth).

This is a rare bird on the continent of India. It has been obtained in the Carnatic by Mr. Jerdon, and it has also been found, though rarely, on the west coast, and in the Deccan. A single specimen has been obtained in Nepal by Mr. Hodgson, which exactly agrees with Jerdon's figure and those obtained from Pinang by Dr. Cantor. It occurs in Arracan, where it appears to be not very uncommon.

50. CEYX RUFIDORSA, Strickland, P. Z. S. 1846, p. 99.

Alcedo tridactyla apud Horsfield et Raffles.

Ceyx tridactyla apud Jardine et Selby, Ill. Orn. t. 55. f. 2.

Alcedo purpurea. var. Shaw.

CHUCHACK-WRANG of the Javanese (Horsf.).

BINTI ARANG of the Malays in Sumatra (Raffles).

Distinguished from the last by having the whole back and wing-coverts, as well as the crown, rump and tail rufous, with a brilliant lilac tint. The dark blue spot on the front and ears is much less marked than in *C. tridactyla*. Lower parts orange-yellow, chin white.

51. TCHITREA AFFINIS, A. Hay, J. A. S. Beng. 1846, p. 292.

Tchitrea paradisi of Malasia, Auctorum.

? *Muscipeta castanea*, Temminck.

The Malayan Paradise Flycatcher.

The inferior size, and the much shorter and different-looking crest, afford invariable distinctions, by which this species may be recognized apart from *Tch. paradisi*.

52. PHILENTOMA VELATUM.

Drymophila velata, Temminck, Pl. Col. 334. (the male.)

Monarcha velata, G. R. Gray, Gen. of Birds, i. p. 260.

Monarcha caesia, Lesson, Rev. Zool. (1839), p. 167. (the female.)

Muscicapa pectoralis, Hay, Madras Journ. XIII. pt. 2. p. 161.

Myiagra pectoralis, Strickland, P. Z. S. 1846, p. 101.

The general colour of this bird is dark indigo-blue; the male differing from the female in having a rich claret-coloured breast, black throat, cheeks, superciliary stripe and forehead, while in the female the whole plumage is uniform blue, though perhaps darkest on the throat and breast.

53. HEMICHELIDON LATIROSTRIS.

Muscicapa latirostris, Raffles, Trans. Linn. Soc. XIII. p. 312.

Muscicapa poonensis, Sykes, P. Z. S. 1832, p. 85.

"Colour, greyish-brown above, sometimes a little tinged with rufescent; throat, gorget, belly, and under tail-coverts white, with a slight fulvous tinge on the former; the breast and flanks dull ashy brown, as also the front of the neck contiguous to the ear-coverts, where but a narrow mesial line of fulvous-white passes from the

throat to the gorget; bend of the wing beneath, and axillaries, pale fulvous brown; a whitish streak from the nostril to the eye; bill horny black, basal half of the lower mandible yellow.

"Length, $4\frac{1}{8}$ inches; of wing $2\frac{3}{4}$ ths; tail $1\frac{1}{8}$ ths; bill to forehead (through the feathers) $\frac{1}{2}$ an inch, to gape $\frac{3}{4}$ ths; tarse $\frac{1}{2}$ an inch."

I have carefully compared the specimens from Pinang with those collected in Dukhun by Colonel Sykes, and find they exactly agree in every character.

54. MYIAGRA AZUREA.

Muscicapa azurea, Boddaert.

Muscicapa cærulea, Gmelin. (Raffles.)

Muscicapa occipitalis, Vigors, P. Z. S. 1831, p. 97.

Muscicapa cæruleocephala, Sykes, P. Z. S. 1832, p. 85 (the female).

Azure-headed flycatcher, Lath. LeVaill. Ois. d'Afr. t. 153.

55. RHIPIDURA JAVANICA.

Muscicapa javanica, Sparrmann, Mus. Carls. III. t. 75; Horsfield, Trans. Linn. Soc. XIII. p. 146.

Platyrrhynchus perspicillatus, Vieillot.

The Javan Flycatcher, Lath.

SIKATTAN of the Javanese (Horsf.).

MOORAI-KANDANG of the Malays in Sumatra (Raffles).

56. CRYPTOLOPHA CINEREOCAPILLA.

Muscicapa cinereocapilla, Vieillot.

Platyrrhynchus ceylonensis et *Cryptolopha poiocephala*, Swainson, Zool. Ill. n. s. t. 13. Nat. Lib. Flyc., p. 200. t. 23.

Muscicapa nitida, var. A. Latham.

I believe this bird has not hitherto been noticed as an inhabitant of the Islands; a single specimen, however, was obtained at Malacca.

57. PERICROCOTUS SPECIOSUS.

Turdus speciosus, Latham, Ind. Orn. i. p. 363.

Muscipeta princeps, Vigors. Gould, Century, t. 7.

A single male bird from Keddah.

58. CHAPTIA MALAYENSIS, Lord A. Hay, J. A. S. Beng. 1846, p. 294. Blyth's Catal. p. 200.

? *Drymonax niger*, Lesson, Rev. Zool. 1839, p. 167.

The Malayan Bronze Shrike.

Distinguished from *Ch. ænea* by its inferior size, much less deeply forked tail, shorter wing, and by its deeper bill.

59. DICRURUS BALICASSIUS.

Corvus balicassius, Linnæus.

Dicrurus balicassius, Blyth, J. A. S. Beng. XI. p. 800; XV. p. 298. Strickland, P. Z. S. 1846, p. 102.

Oriolus furcatus, Gmelin.

Bhuchanga annectens, Hodgson, Ind. Rev. 1. p. 326.

Dicrurus affinis, Blyth, J. A. S. Beng. XI. p. 174.

Specimens from Nepal and Dacca (the latter collected by Capt. R. C. Tytler), which I have examined, agree in every respect with those from Malacca.

60. *DICRURUS MALABARICUS*, Scopoli.

Edolius malabaricus, Horsfield. (Raffles).

Edolius retifer, Temminck, Texte de Pl. Col. 178.

Edolius Rangoonensis, Gould, P. Z. S. 1836, p. 5.

The Racquet-tailed Drongo.

BURONG SAWEH of the Malays in Sumatra (Raffles).

CHANWI of the Malays (Eyton).

Has a very short erect frontal crest.

61. *ENNEOCTONUS CRISTATUS*, founded on Edward's B. t. 54.
(but the species is not crested).

Lanius cristatus, Linnæus.

? *L. lucionensis*, Linnæus.

L. phænicurus, Pallas.

L. rutilus, var. A. Latham.

L. superciliosus, var. A. Latham, Hist. ii. p. 37.

L. melanotis, Valenc.

L. ferrugiceps, Hodgson, Ind. Rev. i. p. 446.

A specimen from Pinang agreeing exactly with those from India.

62. *ENNEOCTONUS SUPERCILIOSUS*.

Lanius superciliosus, Latham, Ind. Orn. Suppl. p. 20 ; Gen. Hist. ii. p. 36.

This I believe to be a distinct species from the last, contrary to the opinion formed by the late Mr. Strickland and others. Several specimens were collected at Pinang.

63. *ENNEOCTONUS TIGRINUS*.

Lanius tigrinus, Drapiez, Dict. Class. d'Hist. Nat.

L. magnirostris, Lesson, in Belanger's Voyage.

L. strigatus, Eyton, P. Z. S. 1839, p. 103.

? *L. ferox*, Drapiez.

SERARA of the Malays (Eyton).

64. *TEPHRODORNIS GULARIS*.

Lanius gularis, Raffles, Trans. Linn. Soc. XIII. p. 304.

L. virgatus, Temminck, Pl. Col. 256. f. 1.

BAROU BAROU of the Malays in Sumatra (Raffles).

BURONG TANA of the Malays (Eyton).

65. *LALAGE ORIENTALIS*.

Turdus orientalis, Gmelin.

Ceblepyris striga, Horsfield.

Pycnonotus humeraloides, Lesson.

Sylvia leucophæa, Vieillot (nec Latham).

Saxicola orientalis, Vieillot.

LENJETTAN of the Javanese (Horsf.).

KRAS of the Malays (Eyton).

Lord Arthur Hay has described* a species of this genus from Malacca, under the name of *Ceblepyris culminatus*.

66. EUPETES MACROCERCUS, Temm. Pl. Col. 516; Strickl. P.Z.S. 1846, p. 102.

BURONG TANA RIMBA of the Malays (Cantor).

This form appears to belong to the subfamily *Myiotherina*, a group which includes the following genera, viz.:

Eupetes, *Hodgsonius*, *Callene*, *Drymocapthus*, *Brachypteryx*, *Tesia*, *Troglodytes*, *Pitta*, and others.

Three specimens of this curious bird were obtained at Malacca.

67. DRYMOCATAPHUS NIGROCAPITATUS.

Brachypteryx nigrocapitata, Eyton, P. Z. S. 1839, p. 103.

Drymocapthus nigrocapitatus, Blyth, Journ. A. S. Beng. 1849, p. 815.

Colour of the upper parts rufous brown, of the under bright ferruginous; throat white, flanked by a black streak; cap black, bordered by a white superciliary streak and loreal feathers; ear-coverts dusky, minutely lineated with white, and posteriorly with rufous; sides of the head ashy; bill horny black above, yellow beneath; legs brownish.

Length $6\frac{1}{4}$ inches; of wing, $2\frac{2}{3}$ ths, and tail the same, its outermost feather $\frac{2}{3}$ ths shorter; bill to forehead, through the feathers, $\frac{1}{16}$ ths; to gape, $\frac{7}{8}$ ths; and tarse, $1\frac{1}{8}$ th of an inch. Malacca.

68. PITTA CÆRULEA.

Myiothera cærulea, Raffles, Trans. Linn. Soc. xiii. p. 301.

Pitta gigas, Temm. Pl. Col. 217.

Both sexes of this large species were obtained at Malacca.

69. PITTA BOSCHI, Müller et Schlegel, Verh. Nat. Gesch. Ned. Ind. Av. pp. 5, 16. t. 1.

Pitta elegans, Less. Voy. de la Bon. Ois. t. 3 (nec Temm. Pl. Col.).

Pitta elegans of Temm. apud Bonap. Consp. Gen. Av. p. 256.

Pitta affinis apud Raffles.

SINTAR of the Malays in Sumatra (Raffles).

Distinguished from *P. cyanura* by its smaller size, and by the yellow superciliary streak extending round the black of the crown, and brightening to fiery-red on the nape; the white on the wings is broader, and the male has the breast and abdomen of a beautiful smalt-blue, crossed transversely on the sides of the former with a number of fiery-red narrow bars, and more sparingly so on the centre. In the female the breast and abdomen is marked throughout with numerous narrow bluish-black bars, nearly as in *P. cyanura*, and tinged with red between the bars on the sides.

* Madras Journal, xiii. p. 157, 1844.

Three specimens, two males and a female, of this beautiful species, were obtained at Malacca.

70. *PITTA CUCULLATA*, Hartlaub, Rev. Zool. 1843, p. 65; Strickl. Ann. N. H. xiii. p. 410. t. 20.

Pitta nigricollis, Blyth, J. A. S. Beng. xii. p. 960.

Pitta rhodogaster, Hodgson (the young).

Pitta Schlegeli, Bonap.

Pitta malaccensis apud Schlegel.

Distinguished by its rufous-brown crown; throat, sides of the head and neck all round being black; upper parts and wings darkish green, paler below; the lesser wing-coverts and rump bright glossy azure; middle of belly, vent and under tail-coverts, crimson.

This species is also found in Nepal and Assam.

71. *PITTA CYANOPTERA*, Temminck, Pl. Col. 218.

Myiothera brachyura apud Raffles, Trans. Linn. Soc. xiii. p. 300.

Pitta malaccensis apud Blyth, J. A. S. Beng. xii. p. 960.

Common in the countries eastward of the Bay of Bengal, from Arracan to Malacca. This would appear to be common in the neighbourhood of Pinang, at which place Dr. Cantor obtained several examples.

72. *PITTA GRANATINA*, Temminck, Pl. Col. 506.

Pitta coccinea, Eyton, P. Z. S. 1839, p. 104; Blyth, J. A. S. Beng. xii. p. 961.

MORTUA PLANDO of the Malays (Eyton).

ALLO ALLO, ditto (Cantor).

A number of specimens of this fine species was obtained at Malacca.

73. *GEOCICHLA INNOTATA*, Blyth, Journ. As. Soc. Beng. xv. p. 370 (1846); xvi. p. 146.

Geocichla albogularis, Blyth (? the female).

Resembles *G. citrina*, but has the ferruginous colour of the head and under parts, and the ash colour of its upper parts, much more intense; no white upon the wings; and the lower tail-coverts only (not the vent) are white. The female is smaller and has the throat white, and some white at the sides of the vent; the wings, rump and tail, only, are deep ashy, the back and scapularies being olive-green, much as in the female of *G. citrina*.

74. *TURDUS RUFULUS*, Drapiez, Dict. Class. d'Hist. Nat. x. p. 443; Blyth, Journ. A. S. Beng. xvi. p. 143.

Turdus modestus, Eyton, P. Z. S. 1839, p. 103.

Turdus javanicus apud Blyth, Catalogue.

STRIÉE of the Javanese (Drapiez).

KWARAN of the Malays (Eyton).

MYAI-BOO-NGHET of the Arracanese (Phayre).

“Upper parts greenish olive-brown, with a dull white supercilium;

chin, and generally the median portion of the throat, with the belly and lower tail-coverts white; breast and flanks brownish-fulvous, brighter in old males; the throat and fore-neck streaked laterally with olivaceous, which in some specimens crosses the breast above the fulvous hue, and is more or less ashy; others again, evidently the old males, have the entire crown and neck all round, of a dusky ash colour, mingled with white on the middle of the throat. Bill dusky above, the basal two-thirds of the lower mandible yellow; legs pale brown."

Length, $8\frac{1}{2}$ to 9 inches; of wing, $4\frac{1}{2}$ to 5; tail, $3\frac{1}{2}$.

"Inhabits the eastern coast of the Bay of Bengal," says Mr. Blyth, "from Arracan to the Straits of Malacca, becoming more numerous southward;" and M. Drapiez mentions having received it from Java, where it is a periodical visitant.

75. *TURDINUS MACRODACTYLUS*.

Malacopteron macrodactylum, Strickl. P. Z. S. 1846, p. 103.

Turdinus macrodactylus, Blyth, Journ. A. S. Beng. xiii. p. 382.

Brachypteryx albogularis, Hartlaub, Rev. Zool. 1844, p. 401.

TANA of the Malays, Eyton.

Common at Malacca.

76. *TRICHIXOS PYRRHOPYGA*, Lesson, Rev. Zool. 1839, p. 167.

Turdirostris superciliaris, A. Hay, Madr. Journ. xiii. pt. 11. p. 163 (1844).

Napothera pyrrhomelanura, Müller.

Male—colour of the head, nape, back, chin, throat, breast, and shoulders ashy-black, deepest above; a white superciliary streak above but not beyond the eye; rump, upper tail-coverts and tail bright rufous, the latter tipped with a broad deep brown-black band; wings brown, margined with ashy; flanks and under tail-coverts rufous, belly and vent whitish, washed with rufous; bill black; legs pale yellow.

Length, $8\frac{1}{2}$ inches; of wing, 4; tail, 4, its outermost feathers shorter; bill to front (through the feathers) $1\frac{1}{10}$ th; to gape, $1\frac{2}{5}$ ths; tarse, $1\frac{1}{10}$ th.

In the young or female the plumage above is brown mixed with rufous; the forehead, round the eyes, chin, throat, breast, flanks, and under tail-coverts dusky rufous, whitish on the middle of the belly and vent; the wings brown, the coverts tipped with rufous; the bill is rather shorter and thicker, and is of a horny colour above, yellowish below at base.

77. *MACRONUS PTILOSUS*, Jard. et Selby, Ill. Orn. t. 150 (1835).

Timalia trichorros, Temm. Pl. Col. 594. f. 1 (1836).

BURONG TANAL-UBAN of the Malays, Blyth.

78. *MALACOPTERON CORONATUM*.

Napothera coronata, Müller, Mus. Lugd.; Bonap. Consp. Gen. Av. p. 358.

Malacopteron magnum apud Blyth, J. A. S. Beng. xvi. p. 461.

Colour olive-brown above, greyish towards the neck, more rufous over the rump, and the tail brownish ferruginous; forehead and vertex bright rufous, the feathers narrow-spatulate, of rigid texture, and tipped with black; occiput black; the small feathers around the eye white-centred: lower parts white, slightly tinged with brown, more especially on the sides of the breast. Bill and feet pale, the former darker above.

Length, nearly 6 inches; of wing, $2\frac{7}{8}$ ths; tail, $2\frac{3}{4}$ ths; bill to gape, $\frac{3}{4}$ ths; and tarse, $\frac{3}{4}$ ths of an inch.

Not uncommon at Malacca.

79. *TIMALIA MACULATA*, Temminck, Pl. Col. 593. f. 1.

Timalia pectoralis, Blyth, J. A. S. Beng. xi. p. 793.

Malacopteron squamatum, Eyton.

PAMPANG of the Malays, Eyton.

80. *TIMALIA NIGRICOLLIS*, Temminck, Pl. Col. 594. f. 2.

Timalia erythronota, Blyth, J. A. S. Beng. xi. p. 793.

Brachypteryx nigrogularis, Eyton.

BURONG TANAH of the Malays, Eyton.

81. *TIMALIA ERYTHROPTERA*, Blyth, J. A. S. Beng. xi. p. 794 (1842).

Timalia pyrrhophæa, Hartlaub.

Brachypteryx acutirostris, Eyton.

Upper parts rufous olive-brown, darker on the head; the wings bright rufo-ferruginous; forehead, sides of head, throat, fore-neck and breast, ash-colour, becoming paler towards the belly; flanks pale fulvous-brown; bill dusky, and legs yellowish.

Length, 5 inches; of wing, $2\frac{1}{4}$; tail, 2; its outermost feather $\frac{3}{4}$ of an inch shorter than the middle ones; bill to forehead, $\frac{5}{8}$ ths; to gape, $\frac{3}{4}$ ths; tarse, $\frac{3}{4}$ ths of an inch.

82. *TRICHASTOMA ROSTRATUM*, Blyth, Journ. A. S. Beng. xi. p. 795 (1842).

Colour of the upper parts uniform olive-brown, somewhat darker on the crown, and having a slight ruddy tinge on the rump and tail; the whole under part pure white, a little sullied on the breast and lower tail-coverts; lores and sides of the head pale fulvescent-brown, and sides of the neck to the breast ashy; upper mandible horny-black, lower yellowish-white, except at its extreme tip; legs deeply tinged with yellowish-brown.

Length, about 6 inches; of wing, $2\frac{3}{4}$ ths; tail, 2, its outermost feather, $\frac{3}{8}$ ths shorter: bill to forehead (through the feathers), $\frac{3}{4}$ ths; to gape, $1\frac{5}{16}$ ths; tarse the same.

83. *ALCIPPE CINEREA*.

Malacopteron cinereum, Eyton, P. Z. S. 1839, p. 103.

Alcippe cinerea, Blyth, J. A. S. Beng. xiii. p. 384.

"Irides grey; bill blackish; feet reddish-grey, soles dirty orange. Food, seeds and insects."—Dr. Cantor's Notes.

84. *ALCIPPE AFFINIS*, Blyth, J. A. S. Beng. xi. p. 795 (1842), xiii. p. 384.

Napothera atricapilla, Müller, Mus. Lugd.; Bonap. Consp. Gen. Av. p. 359.

BURONG NIPA of the Malays (Cantor).

Distinguished by its dark crown, pale nape, rufescent hue of the back and rump, and deep ferruginous tail-feathers, white under parts, and distinct brownish-grey band crossing the breast.

Length, $5\frac{3}{4}$ inches; of wing, $2\frac{5}{8}$ ths; tail, $2\frac{1}{2}$, its outermost feather, $\frac{5}{8}$ ths shorter; bill to forehead (through the feathers), $\frac{5}{8}$ ths; to gape, $\frac{13}{16}$ ths; and tarse, $\frac{3}{4}$ ths of an inch.

85. *ALCIPPE CANTORI*, Moore, n. sp.

Upper parts olive-brown, tinged with rufous on the rump; crown ash-brown, much lighter than in *A. affinis*, nape paler; lores, above and behind the eyes, with the ear-coverts, ashy-white; throat, belly, vent and under tail-coverts white, breast mingled white and ash; wings rufescent-brown, the remiges with brighter margins; upper tail-coverts and tail deep rufo-ferruginous, darkening towards the tip; bill horny above, pale below; feet greenish.

Length, nearly $7\frac{1}{2}$ inches; of wing, 3; tail, $3\frac{1}{8}$ th; bill to frontal plumes, $\frac{1}{2}$ an inch; to gape, $\frac{3}{4}$ ths; and tarse, $\frac{1}{2}$ ths of an inch.

Distinguished from *A. affinis* and *A. albogularis*, Blyth, by its larger size, and longer wings and tail. Malacca.

86. *ALCIPPE MAGNIROSTRIS*, Moore, n. sp.

Upper parts olive-brown, darkest on the crown and palest on the nape, and tinged with rufous on the rump, the feathers of the crown spatulate, and with a perceptibly darker shaft and margin; lores and streak over, but not beyond the eye, whitish; base of the lower mandible down the sides of the throat, with the tips of some of the feathers of the cheeks dark-ash; throat, belly, vent and under tail-coverts white; sides of the breast ashy-olive, the centre more ashy; wings rufescent-brown; upper tail-coverts and tail deep rufo-ferruginous; bill horny above, paler below; feet greenish.

Length, 6 inches; of wing, 3; tail, $2\frac{3}{4}$ ths; bill to frontal plumes, $\frac{6}{10}$ ths; to gape, $\frac{9}{10}$ ths; tarse, $\frac{11}{12}$ ths of an inch.

May be known from the other described species by its larger and more robust bill, and by the dark-ash streak down the sides of the throat. Malacca.

87. *ALCIPPE STRIATA*, Blyth, J. A. S. Beng. xi. p. 793 (1842).

? *Myiothera epilepidota*, Temm. Pl. Col. 448. f. 2.

Head and neck above black, or rather brown-black, the feathers of the mesial line white about the shaft, forming a streak of this colour along the middle of the head, besides which there are two slight lateral streaks not observable in every specimen, in addition to a superciliary line of the same; on the nape the white centres of the feathers are broader and more irregularly disposed, while on the back they become much narrower again, more or less so in different

specimens, and wholly disappear on the rump; the ground hue of the back and rump is rich fulvous brown, brightening on the latter, and tending to rufous on the upper tail-coverts; lores conspicuously pale fulvous; throat and fore-neck fulvous white, the ear-coverts margined with black; sides of the breast white, handsomely bordered with black, and with a very slight margin of the same on the medial pectoral feathers; rest of the under parts white, the flanks bordered with fulvous brown, which spreads nearly over the whole feather posteriorly; lower tail-coverts more or less tinged with the same; wing feathers dusky interiorly, the coverts having terminal longitudinal white spots; tail ruddy brown, margined with more rufous brown at base; bill black; legs yellowish.

Length, $5\frac{1}{2}$ inches; of wing, $2\frac{1}{2}$ to $2\frac{5}{8}$ ths; tail, 2; bill to forehead (through the feathers), $\frac{5}{8}$ ths; to gape, $\frac{7}{8}$ ths; and tarse, $\frac{3}{4}$ ths of an inch.

88. PYCNONOTUS JOCOSUS.

Lanius jocosus, Linnæus.

Icos monticolus, McClelland.

Icos pyrrhotis, Hodgson.

Icos erythrotis, Bonap. Consp. Gen. Av. p. 265.

Otocompsa jocosa, Cabanis, Cat. B. Mus. Heine, p. 109 (1851).

Differs from the Indian examples only in having a much shorter sub-ocular tuft of a deeper crimson colour.

"In fine examples of Indian specimens," remarks Mr. Blyth, "the longest of the hair-like plumes composing this ornamental tuft measures above $\frac{5}{8}$ ths of an inch, passing considerably beyond the extremities of the white ear-coverts, and impending their upper half; while in equally fine specimens from Malacca, they appear as if truncated, and impend only the basal third of the white ear-coverts: in other respects the two birds are exactly similar."

89. PYCNONOTUS GOIAVIER.

Muscicapa goiavier, Scopoli.

Muscicapa Psidii, Gmel.

Turdus analis, Horsfield.

Loedorus goiavier, Reichenb. (1850) Cat. B. Mus. Heine, p. 109.

Guava Flycatcher, Latham.

CHUCHAK of the Javanese (Horsf.).

BIRIBBA of the Malays in Sumatra (Raffles).

This species is extremely common at Pinang.

90. IXIDIA CYANIVENTRIS, Blyth, J.A.S. Beng. xi. p. 792 (1841).

Malacopteron aureum, Eyton, Ann. Nat. Hist. xvi. p. 228.

Turdus, No. 6. Raffles, Trans. Linn. Soc. xiii. p. 311.

Common in the vicinity of the Straits of Malacca.

91. BRACHYPODIUS MELANOCEPHALUS.

Lanius melanocephalus, Gmelin.

Brachypodius melanocephalus, Blyth, J. A. S. Beng. xiv. p. 576.

Ixos atriceps, Temm. Pl. Col. 147.

Ixos metallicus, Eyton, Ann. Nat. Hist. xiv. p. 228.

BURONG LILIN of the Malays in Sumatra (Raffles).

BOK-WA of the Arracanese (Phayre).

92. *MICROTARSUS MELANOLEUCOS*, Eyton, P. Z. S. 1839, p. 102 (male).

Brachypodius tristis, Blyth, J. A. S. Beng. 1845, p. 576 (female).

Ixos vidua, Temm. Mus. Lugd.; Bonap. Cons. Gen. Av. p. 264 (1850).

Several specimens of this species, in various states of plumage, were obtained at Malacca, where it is not very uncommon. The adult male may be distinguished by its uniform sooty-black appearance, the wing-coverts being white with blackish tips; whereas, in the young, the whole upper plumage is of a plain brown, under parts paler, especially on the abdomen and throat; the rump of a dusky colour, with dull yellowish-brown terminal fringes, and having no trace of the white on the wing-coverts.

A specimen of what may possibly be a state of plumage, or the female of this bird, has the head, back, rump and shoulders of an olive-green colour; wings dusky, ferruginous on the outer webs, and margined with olive-green; coverts rufous olive-green; tail rufous, paler below, the feathers of the rump copious; flanks dusky, with a broad yellowish-white tip to most of the feathers; throat white, the breast brownish-grey; fore part of abdomen white tinged with yellow, the latter colour becoming brighter on the vent and under tail-coverts. Bill and feet dark horn colour.

Length, $7\frac{1}{4}$ inches; of wing, $3\frac{5}{8}$ ths; tail, $3\frac{3}{4}$ ths; bill to gape, $\frac{7}{8}$ ths; and tarse, rather more than $\frac{1}{2}$ an inch.

If new, *M. Cantori*, Moore.

93. *CRINIGER CANTORI*, Moore, n. sp.

Crown deep ash, the feathers brown at base, becoming paler on the nape, and passing to yellowish olive-green on the back, rump and shoulders; wings rufous-brown, edged with olive-green; tail rufous-brown, edged with paler; lores, ear-coverts and sides of neck pale-ash; base of lower mandible and throat white; rest of the under parts bright yellow; bill horn-colour above, paler below; feet yellowish.

Length, $7\frac{1}{4}$ inches; of wing, $3\frac{1}{2}$; tail, $3\frac{1}{4}$; bill to gape, $\frac{9}{10}$ ths; and tarse, $\frac{1}{2}$ an inch.

The nuchal hair-like barbs are well developed in this species. Like *C. gularis*, Horsfield, it is not crested. Malacca.

94. *TRACHYCOMUS OCHROCEPHALUS*.

Turdus ochrocephalus, Gmelin; Horsf.; Temm. Pl. Col. 136.

Trichophorus crispiceps, Blyth, J. A. S. Beng. xi. pp. 186, 204.

Trachycomus ochrocephalus, Cabanis, Cat. B. Mus. Heine, p. 109 (1851).

CHUCHAK-RAWA of the Javanese (Horsf.).

BAROU BAROU of the Malays (Eyton).

"Irides dark brown, bill and feet black. Very loquacious."—Cantor.

95. *HYPSSIPETES MALACCENSIS*, Blyth, J. A. S. Beng. (1845) p. 574.

CHTAP of the Malays (Blyth).

Upper parts dull olive-green; the wings and tail brownish dusky, margined with the colour of the back; throat and breast ashy, with whitish centres to the feathers; the abdomen and lower tail-coverts dull white; bend of the wing beneath, and the axillaries pale yellow; bill and feet horn colour; feathers of the crown pointed.

Length, $8\frac{1}{2}$ inches; of wing, 4; tail, $3\frac{1}{2}$, its outermost feather $\frac{1}{4}$ inch less; bill to gape, $1\frac{1}{8}$ th; and tarse, $\frac{3}{4}$ ths of an inch.

96. *PHYLLORNIS JAVENSIS*.

Meliphaga javensis, Horsfield, Trans. Linn. Soc. xiii. p. 152. ♂. (1820).

Chloropsis Sonneratii, Jard. et Selby, Ill. Orn. text to t. 7 (1826) et t. 100.

Phyllornis Müllerii, Temm. Texte de Pl. Col.

Turdus viridis, Horsf. (jun. ♀).

Chloropsis gamporhynchus, Jard. et Selby, Ill. Orn. t. 7 (jun.).

Chloropsis zosterops, Vigors, App. Mem. Raffles, p. 674.

CHUCHACK-IJU (♂), IJOAN (♀) of the Javanese (Horsf.).

DAUN OF DAWOUN of the Malays (Eyton).

97. *PHYLLORNIS CYANOPOGON*, Temminck, Pl. Col. 512. f. 1.

Phyllornis molluccensis, J. E. Gray, Zool. Misc. 1832, p. 33 (adult male); Strickl. P. Z. S. 1846, p. 100.

Phyllornis malabaricus apud Blyth, J. A. S. Beng. xii. p. 957.

Phyllornis cochinchinensis apud Raffles, Trans. Linn. Soc. xiii. p. 309; Blyth, J. A. S. Beng. xiv. p. 565; Moore, Catal. Birds Mus. E. I. Comp. p. 260.

BURONG DAUN of the Malays in Sumatra (Raffles).

The adult male of this species is well figured by Temm. Pl. Col. 512. f. 1, and may be distinguished by having the lores, base of bill, chin, throat and fore-neck black; the head, neck, and surrounding the black of the throat light yellow, somewhat rufescent on the neck; a small short moustachial streak of brilliant smalt-blue at the base of the lower mandible; wings and tail tinged with fine blue, with a verdigris patch on the shoulder of the wing. The young, or female, has the forehead, throat, and region of the eyes green, and a fulvous tinge on the crown only, the wings having the verdigris wing-patch, and, together with the tail, tinged with blue.

98. *PHYLLORNIS MYSTACALIS*, Swainson, 2 $\frac{1}{4}$ Cent. p. 296 (1818) (young).

Phyllornis malabaricus, Temm. (nec Gmel.) Pl. Col. 512. f. 2.

Phyllornis cyanopogon, apud Blyth, J. A. S. Beng. xiv. p. 564.

Phyllornis icterocephalus (Temm.), Bonap. C. G. Av. p. 396.

Lores, base of bill, chin and throat black, with a faint tinge of yellow around them, and having a smalt-blue moustachial streak; the crown slightly tinged with fulvescent, the rest of the upper parts, with the wings and tail, wholly green, paler beneath. The young or female has the whole upper parts wholly green, the lower pale greenish-yellow, and the moustachial streak light blue.

Query.—Is the bird in Temm. Pl. Col. 484. f. 2. the true *Cochinchinensis*, Gmel.?

-99. *IORA SCAPULARIS*, Horsf. Zool. Res. in Java (the female).

Iora viridissima, Temm. Bonap. Consp. Gen. Av. p. 397 (the male).

CHITO of the Javanese (Horsf.).

BURONG CAPAS of the Malays (Eyton).

"The male of this species," according to Mr. Blyth, "has the throat and fore-neck dark green, uniform with the upper parts, and no yellow except on the orbital feathers."

"This is a bird of social habits, and resorts to the vicinity of human dwellings; indeed, it appears to have retired from the forests, and established itself in the trees and hedges which surround the villages and plantations. The structure of its wings does not enable it to take long-continued excursions, but it shows itself by short and frequent flights between the trees and branches. It is most lively in the middle of the day, when, under a burning sun, the inhabitants uniformly retire to rest; early in the morning, and towards the approach of night, it is rarely perceived; but during the silence prevailing at noon it enlivens the village with the song of *Cheetoo*, *Cheetoo*, which it repeats at short intervals during its sportive sallies between the branches. It feeds on small insects, and its economy is in some measure illustrated by the comparative length and sharpness of the bill, and by the broken and splintery state in which the claws are frequently found. The laminæ, or plates which compose them, are separated, and the sides are marked with small fissures, which appear to be occasioned by incessant use in scraping the bark off trees."—*Horsfield*.

Obtained at Pinang and Malacca, and those all females.

100. *IORA TYPHIA*.

Motacilla typhia, Linnæus (Edw. B. t. 79).

Ficedula bengalensis, Briss.

Motacilla subviridis, Tickell, J. A. S. Beng. ii. p. 577.

CHAHUTUCK of the Bengalese (Hamilton).

101. *ORIOLOUS INDICUS*, Brisson; Jerdon, Ill. Ind. Orn. t. 15; Blyth, J. A. S. Beng. xv. p. 47.

Oriolus chinensis et *O. cochinchinensis* of India, Auctorum.

Oriolus chinensis apud Raffles.

TIONG ALOU or PUNTING ALOU of the Malays in Sumatra (Raffles).

"Iris greyish-rose; bill reddish-buff; feet greenish-grey."—*Cantor*.

"Rather a rare bird in India generally, but in the countries eastward of the Bay of Bengal it is generally common, as in Arracan, the Tenasserim provinces, and Malayan peninsula; also in China."—*Blyth*.

102. *ORIOLUS XANTHONOTUS*, Horsf. Trans. Linn. Soc. xiii. p. 152 (Zool. Res. in Java).

Oriolus leucogaster, Reinw. Temm. Pl. Col. 214 ♂ ♀.

Oriolus castanopterus, Blyth, J. A. S. Beng. xi. p. 796 ♀.

ATTAT of the Javanese (Horsf.).

SEPONG RAYATE or SIMPELONG RAIT of the Malays (Eyton).

103. *IRENA MALAYANA*, Moore, Catal. Birds Mus. E. I. Comp. p. 274.

Irena puella of the Malay countries, Auctorum. (Horsf. Zool. Res. in Java, ♂ ♀; Temm. Pl. Col. 70. 225. 476.)

BRESSI of the Javanese (Horsf.).

BIANG KAPOOR of the Malays in Sumatra (Raffles).

QUAYANG or KROUING of the Malays (Eyton).

The distinction between the Indian and Malayan *Irena* was first pointed out by Lord Arthur Hay; to the former he gave the name of *I. indica*, but as the specimen described by Latham was from India, the name *puella* will apply to those from the Continent only; the Malayan species is consequently without a name, and the name *malayana* is proposed for it. In the *I. malayana* the under tail-coverts reach quite to the end of the tail; while in *I. puella*, Lath., they are never less than an inch and a quarter short of the tail-tip in the males, and generally an inch and a half in the females.

"In Java," remarks Dr. Horsfield, "this species inhabits woods and forests, feeding on fruits and wild grains. It is a very rare bird, and confined to a few districts, where it conceals itself on solitary hills, distant from the habitations of man, preferring rather elevated and cool situations. I met with it only in the western parts of the island; once in the province of Banyumas, and a second time on the ridges of hills situated south-west from Buitenzorg. It is also found in the interior of Sumatra and the adjacent islands."

104. *COPSYCHUS MINDANENSIS**.

Turdus mindanensis, Gmelin.

Lanius musicus, Raffles (excl. syn.).

Gryllivora magnirostra, *G. rosea*, et *G. brevirostra*, Swains.

MOORAI or MOORAI KICHOU of the Malays in Sumatra (Raffles).
Common at Pinang and Malacca.

* *Copsychus amoenus*, Horsfield, differs from this in having the whole under parts entirely black in the male, and slaty-grey in the female.

105. KITTACINCLA MACROURA.

Turdus macrourus, Gmel. (Lath. Syn. 111. t. 39; Levaill. Ois. d'Afr. t. 114; Kittl. Kupf. Vögl. t. 11. f. 1.)

Turdus tricolor, Vieill.

Grillivora longicauda, Swains.

Kittacincla macroura, Gould, P. Z. S. 1836, p. 7.

SHAMA of the Bengalese (Hamilton).

LARWA of the Javanese (Horsf.).

MURABUTA of the Malays (Eyton).

CHANGCHOOI of the Malays in Sumatra (Raffles).

"The *Shámá* is reputed to be the finest of oriental songsters; besides which it has a considerable propensity to imitation, and one in my possession learned to give the crow of a cock to perfection, also the notes of the *Coël* (*Eudynamis orientalis*), the chatter of a troop of *Saat Bhyes* (*Malacocircus canorus*), &c. Many thousands of these elegant birds are kept in cages in Calcutta, and the universally absurd practice is to darken their cages by wrapping them with several folds of cloth, enough to stifle the luckless captives in this climate, though it must be confessed they sing most vigorously while thus circumstanced, but certainly not more so than mine, which were exposed to the light and air. It is a practice of the rich natives to employ servants to carry about their *Shámás* and other birds, and the number which are thus borne about the streets of Calcutta is astonishing; the poor birds are shut out from all light and air, like Mahomedan ladies enjoying (?) their evening drive, but they nevertheless (*i. e.* the birds) sing forth most lustily and melodiously."—*Blyth*.

106. ZANTHOPYGIA TRICOLOR.

Muscicapa zanthopygia, Hay, Madras Journ. (1844) p. 162.

Muscicapa tricolor, Hartlaub, Rev. Zool. (1845) p. 406.

Zanthopygia leucophrys, Blyth, J. A. S. Beng. (1847) p. 123.

"Colour of the male, deep black above, bright yellow below and on the rump; a large wing-spot, continued along two-thirds of the outer edge of the largest tertiary, also a spot before and over the eye, and the lower tail-coverts pure white; bill dusky-horn or blackish; legs brown. The female differs widely in being of a light olive-green above, tinged with grey, especially on the head; below yellowish-albescent, the feathers of the fore-neck and breast margined with the hue of the upper parts; rump, towards the tail, bright and pure light-yellow; the two great ranges of wing-coverts tipped, and the tertiaries externally margined with white; loreal streak and the lower tail-coverts dull-white; bill dusky above, pale below, and legs pale.

"Length, 5 inches; of wing, $2\frac{3}{4}$ ths; tail, $1\frac{3}{4}$ ths; bill to gape, $\frac{5}{8}$ ths; and tarse, barely $\frac{5}{8}$ ths of an inch."

A female only was obtained at Pinang.

107. ERYTHROSTERNA ERYTHACA, Blyth, J. A. S. Beng. 1847, p. 126.

"Closely allied in form and structure to *E. leucura*, Gmel.; *Musc.*

parva of India; but the whole throat, breast, and fore-part of the abdomen bright yellowish-ferruginous; two narrow whitish bands across the wing, formed by the tips of the coverts; and the white on the sides of the base of the tail much reduced (as compared with *E. leucura*), occupying only the extreme base of the outermost tail-feathers, and successively increasing in quantity upon the next four; belly and lower tail-coverts pure white; the flanks fulvous-brown; behind the eye a whitish spot; a slight olivaceous tinge on the upper-parts generally, and the tertials margined with whitish.

"Length, nearly 5 inches; of wing $2\frac{3}{8}$ ths; tail $1\frac{7}{8}$ ths; bill to gape $\frac{9}{16}$ ths, and tarse the same.

"The female is probably without the rufous on the under-parts, but would be distinguished from that of *E. leucura* by the narrow whitish bands on the wing, and also by the reduced quantity of white at the base of the tail."

From Malacca.

108. ORTHOTOMUS LONGICAUDA.

Motacilla longicauda et *M. sutoria*, Gmelin; Pennant, Ind. Zool. i. p. 44.

Sylvia guduratta, Lath.

Orthotomus Bennettii et *O. lingoo*, Sykes, P. Z. S. 1832, p. 90.

Orthotomus ruficapilla, Hutton, J. A. S. Beng. 1833, p. 504.

Orthotomus sphenurus, Swains. $2\frac{1}{4}$ Cent. p. 343 (1838).

Orthotomus patia, Hodgson, Gray's Zool. Misc. 1844, p. 82.

Sutoria agilis, Nicholson, P. Z. S. 1851, p. 194.

The Tailor Bird.

TUNTUNI of the Hindoos (Hamilton). PHUTKI, Jerdon.

PATIA (i. e. Leaf-bird), Nepalese (Hodgs.).

For observations on the habits of this interesting little bird, I must refer the reader to the 'Catalogue of Birds in the Museum of the East India Company,' p. 316.

109. ENICURUS FRONTALIS, Blyth, J. A. S. Beng. (1847) p. 156.

"Plumage black, with white lower abdomen, wing-band, rump, and two outermost tail-feathers on each side, the other tail-feathers white-tipped; a triangular frontal crest of white feathers, evidently erectile, those forming the apex being longer than the black coronal feathers they impend. The young have the frontal crest much reduced." Bill black, legs yellow.

Length, about 7 inches; of wing $3\frac{1}{2}$; tail $3\frac{5}{8}$ ths; bill to frontal plumes $\frac{5}{8}$ ths, to gape $\frac{7}{8}$ ths; tarse 1 inch.

Distinguished from *E. Leschenaulti* by its smaller size, less developed white frontal crest, shorter wings and tail, and smaller feet.

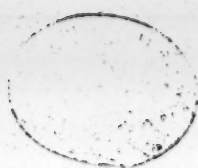
110. CALOBATES SULPHUREA.

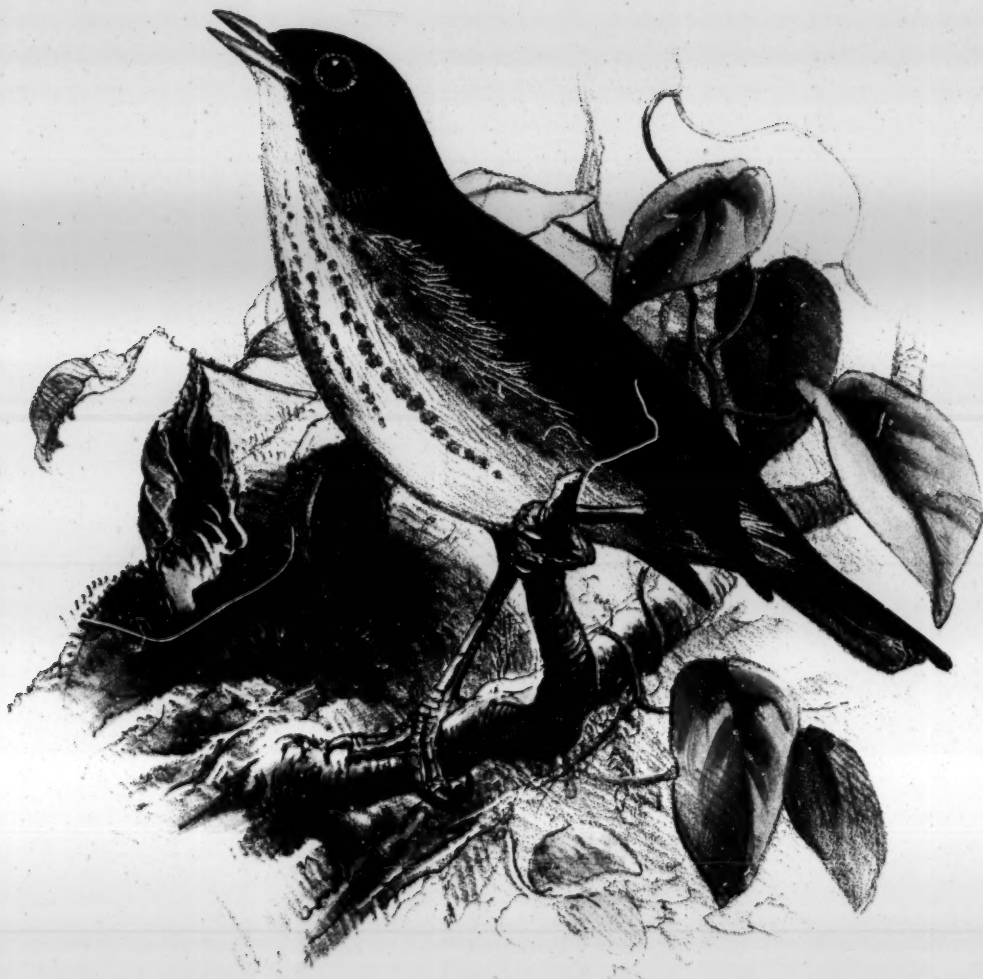
Motacilla sulphurea, Bechstein.

Motacilla boarula, Pennant (nec Linn.).

Motacilla bistrigata, Raffles, Trans. Linn. Soc. xiii. p. 312.

Motacilla xanthoschistos, Hodgson, Gray's Zool. Misc. (1844) p. 83.





J. Wolf, lith

M & N Hanhart, J

MALACOCICHLA DRYAS, Gould.

Pallemura javensis, Bonap. C. G. Av. p. 250 (1850).

The Grey Wagtail.

LETTI LETTI of the Malays in Sumatra (Raffles).

111. BUDYTES VIRIDIS.

Motacilla viridis, Linn.

Budytes Beema, Sykes, P. Z. S. 1832, p. 90.

Budytes neglecta et *B. flava*, Jerdon, Madras Journ. xi. p. 9.

Budytes dubius, v. *anthoides*, Hodgson, Gray's Zool. Misc. (1844) p. 83.

Budytes fulviventris et *B. schisticeps*, Hodgson, Gray's Zool. Misc. (1844) p. 83.

PILKYA of the Hindoos (Hamilton).

BESSIT of the Javanese (Horsf.).

112. ANTHUS MALAYENSIS, Eyton, P. Z. S. 1839, p. 104.

Alauda pratensis, apud Raffles.

Anthus euonyx, Cabanis, Cat. Birds Mus. Heine, p. 14 (1850).

The Malayan Pipit.

LANCHA LANCHA or HAMBA PUYU of the Malays in Sumatra (Raffles).

Certainly a distinct species from the common *A. rufulus*, Vieill.

[To be continued.]

6. DESCRIPTION OF A NEW BIRD FROM GUATEMALA, FORMING THE TYPE OF A NEW GENUS.

BY JOHN GOULD, F.R.S. ETC.

(Aves, Pl. LXXV.)

Genus MALACOCICHLA, Gould.

Gen. Char. Bill straight, shorter than the head; culmen keeled, and slightly descending from the middle to the point; tomiae nearly straight; upper mandible slightly notched at the tip; nostrils placed in a deep depression on each side of the base of the bill; rictus destitute of vibrissæ; wings semiconcave, moderately long and slightly rounded; first quill very short, the fourth the longest; tarsi somewhat lengthened and with slight or delicate scutellations; middle and hind toes very long; tail moderately long, somewhat concave, and soft to the touch.

This form is closely allied to *Grallaria* and *Chamaeza*, and would appear to unite the members of those genera to those of *Turdus*. It is very elegant, all the parts being admirably proportioned; and the colours harmoniously arranged.

MALACOCICHLA DRYAS. (Pl. LXXV.)

Head, cheeks and ear-coverts jet-black, the feathers of the crown somewhat lengthened; back, wings and tail dark greenish-olive; centre of the throat and under surface pale buffy-yellow, blending

into the olive of the upper surface on the flanks; the feathers of the breast and upper part of the abdomen tipped with olive; bill and eyelash orange-red; legs and feet orange-yellow.

Total length 7 inches; bill $\frac{7}{8}$; wing $3\frac{3}{4}$; tail $2\frac{7}{8}$; tarsi $1\frac{1}{2}$; middle toe and nail $1\frac{1}{16}$; hind-toe and nail $\frac{3}{4}$.

Hab. Guatemala.

Remark.—In size this bird is rather smaller than the European Redwing, *Turdus Iliacus*.

December 12, 1854.

R. C. Griffith, Esq. in the Chair.

The following papers were read:—

1. DESCRIPTIONS OF FIFTY-SEVEN NEW SPECIES OF HELICEA,
FROM MR. CUMING'S COLLECTION.

By DR. L. PFEIFFER.

1. *HELIX AMAZONICA*, Pfr. *H. testa umbilicata, depressa, solida, superne confertim undulato-plicata et subgranulata, fulva, ad suturam et carinam rufo-maculata; spira vix elevata, obtusa; anfract. $5\frac{1}{2}$ parum convexis, regulariter accrescentibus, ultimo non descendente, periphæria subacute carinato, basi inflato, confertim radiato-striato, flavescenti-albido, rufo-multifasciato; umbilico angusto, pervio; apertura parum obliqua, angulato-lunari, intus margaritacea; perist. breviter reflexo, margine supero fere horizontaliter patente, basali arcuato, columellari in luminam triangularem, fornicatam expanso.*

Diam. maj. 51, min. 43, alt. 21 mill.

Hab. Banks of the Amazon.

2. *HELIX AURIS*, Pfr. *H. testa sinistrorsa, umbilicata, depressa, ambitu subauriformi, tenui, oblique confertim striatula, superne vix nitidula, isabellina; spira vix elevata, obtusa; sutura lineari, minutissime crenulata; anfract. $4\frac{1}{2}$ vix convexis, rapide accrescentibus, ultimo non descendente, periphæria subangulato, basi tumido, nitidiore; apertura diagonali, subtetragono-rotundata; perist. simplice, marginibus subconniventibus, externo recto, basali subincrassato, albo, juxta umbilicum angustum, perivium triangulatim reflexo.*

Diam. maj. 47, min. 37, alt. 22 mill.

Hab. Koondah Mountains near Calicut (Pirrie).

3. *HELIX INÆQUALIS*, Pfr. *H. testa late umbilicata, depressa, solida, oblique rugoso-plicatula, lineis spiralibus impresso-punctatis, distantibus sculpta, nitidula, fusco-lutea, castaneo irregulariter strigata, interdum fascia 1 latiuscula nigra infra*

medium ornata; spira vix elevata; anfract. 5 parum convexis, sensim accrescentibus, ultimo non descendente, peripheria subangulato, basi subplanato, nitidiore, radiato-striato; umbilico conico, $\frac{1}{4}$ diametri subæquante; apertura parum obliqua, lunato-rotundata, intus albo-callosa: perist. recto, marginibus subconvergentibus; dextro simplice, leviter antrorsum arcuato, basali et columellari subincrassatis.

Diam. maj. 22, min. $19\frac{1}{2}$, alt. 9 mill.

Hab. Isle of Pines, Australian Seas (Macgillivray).

4. *HELIX COSTULIFERA*, Pfr. *H. testa umbilicata, depressa, tenui, subconferte arcuato-costata, diaphana, pallide cornea, ad suturam castaneo-maculata, cæterum oblique rufo-strigata; spira vix elevata; sutura profunda; anfract. 5 parum convexis, sensim accrescentibus, ultimo non descendente, depresso, peripheria obsolete subangulato, basi planiusculo; umbilico conico, $\frac{1}{4}$ diametri subæquante; apertura diagonali, subquadrato-rotundata; perist. simplice, recto, marginibus subconvergentibus, dextro antrorsum arcuato, columellari brevi, subverticali.*

Diam. maj. $6\frac{1}{2}$, min. 5, alt. 2 mill.

Hab. Isle of Pines, Australian Seas (Macgillivray).

5. *HELIX PINICOLA*, Pfr. *H. testa umbilicata, depressa, tenui, confertim arcuato-plicata, haud nitente, corneo-lutea, ad suturam castaneo-maculata, cæterum strigis angulosis picta; spira plana; anfract. 5 convexis, sensim accrescentibus, ultimo non descendente, terete; umbilico $\frac{1}{3}$ diametri æquante, cyathiformi; apertura parum obliqua, lunari; perist. simplice, recto, marginibus vix convergentibus, dextro arcuatim introrsum dilatato, columellari vix patente.*

Diam. maj. $7\frac{1}{2}$, min. $6\frac{1}{2}$, alt. 3 mill.

Hab. Isle of Pines, Australian Seas (Macgillivray).

6. *HELIX SUBRUDIS*, Pfr. *H. testa umbilicata, depressa, solidula, oblique subruditer striata strisque spiralibus confertis, sub lente decussata, opaca, albida, fascia lata violaceo-fusca ad suturam, nonnullisque obsoletis cincta; spira depresso conoidea, apice obtusula, cornea; anfract. 5 convexiusculis, sensim accrescentibus, ultimo terete, non descendente; umbilico medioeri, fere $\frac{1}{4}$ diametri æquante; apertura parum obliqua, lunato-rotundata; perist. simplice, recto, marginibus convergentibus, columellari breviter patente.*

Diam. maj. $17\frac{1}{2}$, min. 15, alt. 9 mill.

Hab. — ?

7. *HELIX LETA*, Pfr. *H. testa angustissime sed pervie umbilicata, subturbinata, solidiuscula, striolis irregularibus obliquis subgranulata, parum nitente, lutescenti-alabastrina; spira conoidea, apice acutiuscula; sutura marginata; anfract. 6 vix convexiusculis, lente accrescentibus, ultimo non descendente, subacute ruguloso-carinato, basi inflato; apertura parum obliqua,*

angulato-lunari, intus margaritacea; perist. recto, obtuso, marginibus remotis, columellari superne in laminam brevem triangularem dilatato.

Diam. maj. 35, min. 29, alt. 18 mill.

Hab. — ?

8. *HELIX BOGOTENSIS*, Pfr. *H. testa umbilicata, sublentiformi, solida, acute carinata, striata, sub lente minutissime granulata, nigro-castanea; spira brevissima, obtusa; sutura lineari, submarginata; anfract. 4½ planulatis, ultimo antice tumido, fere rectangule deflexo, supra et infra carinam profunde scrobiculato, basi circa umbilicum angustum, pervium convexo; apertura perobliqua, rhombeo-auriformi; perist. continuo, albo, crasso, undique soluto et reflexo, margine supero arcuato, intus tuberculo triangulari munito, parietali flexuoso, laminam validam linguæformem emittente, basali medio subangulatim descendente, latere sinistro tuberculis 2 inæqualibus, dextro plicis 2 inæqualibus, in tuberculo elevato positis munito.*

Diam. maj. 37, min. 33, alt. 14 mill.

Hab. Santa Fé de Bogota.

9. *HELIX ELLIPSOSTOMA*, Pfr. *H. testa anguste et semiobtecte umbilicata, conoidea, tenui, striata et sub lente minutissime granulata, fusca; spira conoidea, subacuminata; sutura lineari, submarginata; anfract. 5 pluriusculis, sensim accrescentibus, ultimo acute carinato, antice subito deflexo, basi parum convexo, antice triscrobiculato; apertura fere horizontali, elliptico-rhombea, dente lamellæformi, libero, longe intrante coarctata; perist. continuo, albo, margine parietali erecto, supero breviter expanso, basali reflexo, medio subangulatim descendente, parte sinistra tuberculo unico, dextra plicis 2 divergentibus, basi junctis munito.*

Diam. maj. 20, min. 17½, alt. 9 mill.

Hab. Santa Fé de Bogota.

10. *HELIX ANNATONENSIS*, Pfr. *H. testa umbilicata, depressa, tenuiuscula, sublævigata, nitida, pellucida, corneo-cerea; spira vix elevata; sutura impressa; anfract. 5 convexiusculis, regulariter accrescentibus, ultimo non descendente, peripheria rotundato, basi parum convexo; umbilico conico, ¼ diametri paulo superante; apertura obliqua, lunari; perist. simplice, recto, margine dextro antrorsum subdilatato, columellari leviter arcuato.*

Diam. maj. 10½, min. 9, alt. 4 mill.

Hab. Isle of Annaton or Aneiteum, New Hebrides (Macgillivray).

11. *HELIX CIMEX*, Pfr. *H. testa umbilicata, discoidea, tenui, subtiliter capillaceo-striata, haud nitente, pallide cornea; spira planiuscula; anfract. 5 convexiusculis, lente accrescentibus, ultimo non descendente, terete; umbilico perspectivo, ⅓*

diametri subaequante; apertura parum obliqua, parva, rotundato-lunari; perist. simplice, recto, marginibus convergentibus.
 Diam. maj. 3, min. $2\frac{1}{2}$, alt. $1\frac{1}{3}$ mill.

Hab. Lord Howe's Island. (Macgillivray.)

12. *HELIX SINGULARIS*, Pfr. *H. testa sinistrorsa, perforata, trochiformi, solidiuscula, peroblique striata, epidermide fulvo-fusca induta; spira subconcavo-conica, apice acutiuscula; anfract. $6\frac{1}{2}$ convexiusculis, ultimo subacute carinato, antice vix descendente, basi convexiore; apertura perobliqua, transverse truncato-ovali; perist. albo, marginibus vix convergentibus, externo expanso, columellari superne in laminam triangularem reflexo.*

Diam. maj. 9, min. 7, alt. 7 mill.

Hab. Isle of Aneiteum, New Hebrides. (Macgillivray.)

13. *HELIX VALLICOLA*, Pfr. *H. testa perforata, depressa, laevigata, nitida, pellucida, fusco-cornea; spira vix elevata; sutura impressa, submarginata; anfract. 5 vix convexiusculis, sensim accrescentibus, ad suturam striatulis, ultimo non descendente, peripheria rotundato, basi albido; apertura subverticali, lunari; perist. simplice, recto, marginibus vix convergentibus, columellari declivi, superne reflexo.*

Diam. maj. 12, min. $10\frac{1}{2}$, alt. 5 mill.

Hab. Koondah Mountains, India. (Pirrie.)

14. *HELIX CONSUL*, Pfr. *H. testa subclausae perforata, depressa, tenui, levissime striatula et sub lente striis confertis spiralibus sculpta, lucida, fusco-cornea; spira brevissime conoideo-elevata; sutura marginata; anfract. 6 convexiusculis, regulariter accrescentibus, ultimo non descendente, rotundato, basi medio subexcavato; apertura subverticali, rotundato-lunari; perist. simplice, recto, marginibus vix convergentibus, dextro perarcuato, columellari declivi, superne anguste reflexo.*

Diam. maj. $20\frac{1}{2}$, min. 18, alt. 10 mill.

Hab. Sarawak, Borneo.

15. *HELIX AGLAIA*, Pfr. *H. testa subclausae perforata, depressa, tenui, laevigata, nitidissima, pellucida, fulvo-succinea; spira vix elevata, vertice subtili; sutura linea rufescente marginata; anfract. 6 convexiusculis, lente accrescentibus, ad suturam plicatulis, ultimo non descendente, rotundato, basi medio excavato; apertura parum obliqua, regulariter lunari; perist. simplice, recto, marginibus distantibus, columellari superne subcalloso, anguste reflexo.*

Diam. maj. 13, min. 11, alt. 6 mill.

Hab. Sarawak, Borneo.

16. *HELIX TOMENTOSA*, Pfr. *H. testa umbilicata, globoso-depressa, tenui, superficie quasi tomentosa, cinnamomea; spira brevissime conoidea, vertice obtuso; anfract. 5 convexis, cele-*

riter accrescentibus, ultimo non descendente, basi inflato, circa umbilicum angustum, pervium compresso; apertura vix obliqua, irregulariter rotundato-lunari, intus pallidiore, nitida; perist. carneo-labiato, expanso et reflexiusculo, marginibus convergentibus, dextro regulariter arcuato, subangulatum cum columellari fornicato-reflexo juncto.

Diam. maj. 16, min. 13½, alt. 9 mill.

Hab. Sarawak, Borneo.

17. *HELIX INFANS*, Pfr. *H. testa subperforata, conoideo-depressa, solidula, laevigata, nitida, albida; spira brevissime conoidea; sutura impressa, distincte marginata; anfract. 5 convexiusculis, sensim accrescentibus, ultimo non descendente, convexiore; apertura obliqua, irregulariter lunari; perist. simplice, recto, rufulo-limbato, marginibus remotis, columellari declivi, superne subincrassato.*

Diam. maj. 5½, min. 5, alt. 3 mill.

Hab. Sarawak, Borneo.

18. *BULIMUS SPECIOSUS*, Pfr. *B. testa anguste perforata, ovata, solidula, longitudinaliter plicata, minutissime granulata et oblique malleata, olivaceo-fusca, maculis rufis adspersa; spira brevi, conica, obtusula; sutura subcrenulata, pallida; anfract. 4 modice convexis, ultimo ⅔ longitudinis fere formante, basi rotundato; columella leviter plicata, albida; apertura parum obliqua, acuminato-ovali, intus plicata, caerulescente, nitidissima; perist. fusco-aurantiaco, undique subincrassato, expanso et revoluta, marginibus callo pellucido junctis, columellari dilatato.*

Long. 38, diam. 30 mill.

Hab. Sierra Nevada de S. Marta. (Schlim.)

19. *BULIMUS JUCUNDUS*, Pfr. *B. testa subrimata, ovato-conica, tenui, plicatula et undique granulata, diaphana, parum nitente, fulva, saturatius strigata, ad suturam maculis castaneis et luteis alternantibus picta; spira conica, obtusula; anfract. 4½ convexiusculis, ultimo descendente, spiram vix superante, basi rotundato; columella albida, compresse torto-plicata; apertura parum obliqua, ovali, intus carnea, nitida; perist. breviter expanso, obtuso, pallide roseo, margine columellari superne subdilatato, appresso.*

Long. 31, diam. 15 mill.

Hab. Antioquia, New Granada. (Schlim.)

20. *BULIMUS TAQUINENSIS*, Pfr. *B. testa subperforata, ovato-oblonga, solidula, longitudinaliter minute striata et malleata, sub epidermide fusco-olivacea strigis obliquis indistinctis rufis picta; spira convexo-conica, obtusula; anfract. 4 modice convexis, ultimo spira paulo longiore, basi rotundato; columella leviter plicata; apertura subverticali, acuminato-ovali, intus*

margaritacea; *perist. subincrassato, carneo, margine dextro revoluto, columellari subdilatato, horizontaliter patente et reflexo.*

Long. 40, diam. 18 mill.

Hab. Taquima, Sierra Nevada de S. Marta; 9000' elevation. (Schlim.)

21. *BULIMUS OTOSTOMUS*, Pfr. *B. testa perforata, oblongo-subfusiformi, solidula, longitudinaliter plicato-striata, alba, strigis latis, nigricanti-castaneis, interruptis et confluentibus variegata; spira conica, obtusa; sutura substrangulata; anfract. 5 convexiusculis, ultimo spira brevior, basi attenuato, subcompresso; columella valide et prominenter torto-plicata, atroviolacea; apertura subverticali, auriformi, basi subangulata, effusa; perist. albo, reflexo, margine dextro superne perarcuato, recedente, columellari superne dilatato, subappresso.*

Long. 31, diam. 13 mill.

Hab. Venezuela.

22. *BULIMUS INTERMEDIUS*, Pfr. *B. testa perforata, elongato-conica, solidula, oblique striatula et puncturata, nitida, alba; spira conica, obtusula; sutura levi, simplice; anfract. 6 planiusculis, ultimo $\frac{3}{4}$ longitudinis subæquante, infra medium subangulato, basi turgida; columella leviter plicata, subrecedente; apertura obliqua, truncato-ovali; perist. sublate expanso, reflexiusculo, marginibus callo tenui junctis, columellari plano, dilatato, triangulari.*

Long. 34, diam. 16 mill.

Hab. Ceylon. (Thwaites.)

23. *BULIMUS LUSORIUS*, Pfr. *B. testa vix perforata, subfusiformi-oblonga, tenui, lævigata, carneo-albida, strigis sparsis undulatis castaneis ornata; spira convexo-conica, acutiuscula; sutura indistincte marginata; anfract. $5\frac{1}{2}$ convexiusculis, ultimo spira paulo brevior, basi attenuato; columella subcompressa, torto-plicata, recedente; apertura parum obliqua, ovali, strigis intus intensioribus; perist. tenui, margine dextro superne curvato, tum late expanso, columellari reflexiusculo.*

Long. 25, diam. 10 mill.

Hab. Banks of Amazon, Brazils.

24. *BULIMUS ANTIOQUIENSIS*, Pfr. *B. testa breviter et profunde rimata, ovato-pyramidata, solidula, minute malleata, nitidula, alba, strigis irregularibus pallide violaceis, rectis vel angulosis ornata; spira elongato-conica, apice lutescente, acutiuscula; anfract. 6 convexiusculis, ultimo spiram vix superante, rotundato; columella superne subplicata, rubella; apertura vix obliqua, oblique truncato-oblonga; perist. tenui, pallide vitellino, undique subæqualiter late expanso.*

Long. 30, diam. 13 mill.

Hab. Province of Antioquia, New Granada. (Schlim.)

25. *BULIMUS ADUMBRATUS*, Pfr. *B. testa subobtecte perforata,*

ovato-conica, solidula, lævigata, albido et roseo adumbrata, strigis distantibus roseo-fuscis et punctis sparsis pellucidis signata; spira conica, apice acuta, nigra; anfract. 6 vix convexiusculis, ultimo spira paulo brevior, basi rotundato, fascia 1 castanea notata; columella subverticali; apertura obliqua, oblongo-ovali; perist. simplice, recto, margine columellari papyraceo, fornicatim reflexo, subadnato.

Long. 20, diam. $9\frac{1}{2}$ mill.

Hab. Ceylon.

26. *BULIMUS PROLETARIUS*, Pfr. *B. testa compresse umbilicata, oblongo-turrita, solidula, sub lente minutissime granulata, nitidula, corneo-fusca; spira elongata, obtusula; anfract. 7 convexis, ultimo $\frac{1}{3}$ longitudinis vix superante, antice subascendente, basi subcompressa; apertura vix obliqua, oblonga; perist. albo-labiato, marginibus approximatis, dextro expanso, superne perarcuato, columellari dilatato, patente.*

Long. 15, diam. 6 mill.

Hab. Ceylon.

27. *BULIMUS LANCEOLATUS*, Pfr. *B. testa imperforata, turrita, solidula, longitudinaliter subarcuato-striata, diaphana, albido-straminea; spira elongata, acutiuscula; sutura levi, crenulata; anfract. 13 subplanis, ultimo $\frac{2}{3}$ longitudinis formante, basi vix attenuato; columella superne subtorta, tum stricta; apertura parum obliqua, acuminato-ovali, basi subangulata; perist. simplice, recto, margine columellari brevissime reflexo.*

Long. 52, diam. 14 mill.

Hab. Natal. (Plant.)

28. *BULIMUS HYALOIDEUS*, Pfr. *B. testa anguste umbilicata, ovato-conica, tenui, irregulariter striatula, subhyalina; spira regulariter conica, apice acutiuscula; anfract. 5 convexis, ultimo spira paulo brevior, basi rotundato; apertura parum obliqua, rotundato-ovali; perist. simplice, acuto, marginibus conniventibus, dextro recto, perarcuato, columellari arcuato, subpatente.*

Long. $12\frac{1}{2}$, diam. $7\frac{1}{2}$ mill.

Hab. Mendez, Andes of New Granada.

29. *BULIMUS PRINGI*, Pfr. *B. testa anguste umbilicata, conica, solida, irregulariter striata et punctata, cretacea, fascia fusca basali plerumque ornata, vel corneo-marmorata; spira regulariter conica, acutiuscula; anfract. 7 convexis, ultimo $\frac{1}{3}$ longitudinis non attingente, rotundato, peripheria obsolete angulato; apertura obliqua, fere circulari; perist. simplice, marginibus conniventibus, dextro perarcuato, columellari substricto, superne dilatato, patente.*

Long. 8, diam. 5 mill.

Hab. Peniche. (Pring.)

30. *BULIMUS LORICATUS*, Pfr. *B. testa sinistrorsa, subimperf-
forata, ovato-pyramidata, solida, confertim striata, albido-
fulva, strigis et maculis fuscis marmorata; spira convexo-
conica, acutiuscula; anfract. 7-8 convexiusculis, ultimo $\frac{2}{3}$
longitudinis subæquante, leviter malleato; columella subverti-
cali, superne subplicata; apertura obliqua, sinuato-semiovali,
intus nitida, pallide rosea; perist. incrassato et breviter ex-
panso, albo, marginibus callo crasso, albo junctis, externo sub-
sinuato, columellari dilatato, reflexo, subadnato.*

Long. 62, diam. 26 mill.

Hab. — ?

31. *BULIMUS CESAR*, Pfr. *B. testa imperforata, globoso-conica,
tenui, sublævigata, sub epidermide decidua, fulva alba; spira
conoidea, apice obtusula; anfract. $5\frac{1}{2}$ modice convexis, ultimo
spiram subæquante; columella fere verticali, plana, alba, trun-
cato-dentata; apertura subdiagonali, lunato-rotundata, intus
alba; perist. albo, breviter expanso, margine dextro superne
antrorsum dilatato.*

Long. 46, diam. 33 mill.

Hab. Philippine Islands.

32. *PARTULA NITENS*, Pfr. *P. testa subperforata, conico-ovata,
ventrosa, tenuiuscula, longitudinaliter subtilissime striata, ni-
tente, diaphana, fulvo-fusca, superne obsolete, basi late luteo-
fasciata; spira conica, acutiuscula; sutura levi, albida; an-
fract. 5 vix convexiusculis, ultimo spiram subæquante, basi
rotundata; apertura vix obliqua, acuminato-ovali; perist.
albo, margine dextro superne subrepando, medio criter expanso,
columellari dilatato, subfornicatum patente.*

Long. 17, diam. 10 mill.

Hab. — ?

33. *SPIRAXIS BISTORTA*, Pfr. *Sp. testa imperforata, turrita,
tenuiuscula, leviter arcuato-striata, nitida, pellucida, olivaceo-
cornea; spira elongata, subrectilineari, obtusa; sutura levi,
obsolete crenulata; anfract. 11 planiusculis, ultimo $\frac{1}{4}$ longitu-
dinis formante, basi attenuato, pallido; columella plicis 2 fili-
formibus, tortis munita; apertura obliqua, ovali-oblonga; perist.
simplice, recto.*

Long. 38, diam. 8 mill.

Hab. — ?

34. *ACHATINA VESTITA*, Pfr. *A. testa subfusiformi-turrita,
tenui, longitudinaliter confertim plicato-striata, alba, epider-
mide fulvida, squamosa vestita; spira turrita, superne nuda,
obtusa; sutura levi, dense crenulata; anfract. 8 planiusculis,
ultimo spira paulo brevior, basi subattenuato; columella ar-
cuata, subtorta, transverse truncata; apertura parum obliqua,*

acuminato-ovali, intus albida; perist. simplice, margine dextro leviter arcuato.

Long. 75, diam. 31 mill.

Hab. Natal (Plant).

35. *ACHATINA NATALENSIS*, Pfr. *A. testa ovato-conica, solidula, albida, epidermide straminea induta; spira regulariter conica, obtusa; anfr. $7\frac{1}{2}$ convexiusculis, summis minutissime, sequentibus distinctius undulato-granulatis, ultimo spiram subæquante, striato, prope suturam striis paucis spiralibus decussato; columella arcuata, subtorta, inflata, anguste truncata; apertura vix obliqua, acuminato-ovali; perist. simplice, tenui.*

Long. 62, diam. 28 mill.

Hab. Natal (Plant).

36. *ACHATINA AURORA*, Pfr. *A. testa oblongo-ovata, solida, sublævigata, fulvida, strigis sparsis, saturate castaneis variegata; spira conica, obtusa; sutura marginata; anfract. 6 convexiusculis, ultimo spiram subæquante; columella perarcuata, purpurea, basi late truncata; apertura parum obliqua, sinuato-ovali, intus lilaceo-rosea, nitida; perist. simplice, fusco-limbato, marginibus callo roseo intrante junctis.*

Long. 59, diam. 28 mill.

Hab. Natal.

37. *ACHATINA LÆVIGATA*, Pfr. *A. testa turrito-oblonga, solidula, lævigata, nitida, lutescenti-cerea; spira elongata, apice obtusa; anfract. 6 vix convexiusculis, sensim accrescentibus, ultimo $\frac{1}{3}$ longitudinis subæquante, basi rotundato, antice striolato; columella callosa, subtorta, oblique truncata; apertura obliqua, acuminato-ovali, intus margaritacea; perist. simplice, acuto.*

Long. 17, diam. 6 mill.

Hab. — ?

38. *ACHATINA CAPILLACEA*, Pfr. *A. testa turrata, tenui, sub lente capillaceo-striata, nitida, pellucida, virenti-cornea; spira elongata, apice obtusula; anfract. $7\frac{1}{2}$ convexis, ultimo $\frac{1}{3}$ longitudinis vix æquante, periphæria obsolete angulato; apertura vix obliqua, sinuato-ovali; columella arcuata, oblique truncata; perist. simplice.*

Long. 9, diam. 4 mill.

Hab. Ceylon (Thwaites).

39. *ACHATINA CHINENSIS*, Pfr. *A. testa oblongo-turrata, tenui, sub lente capillaceo-striata, nitida, pellucida, cerco-hyalina; spira elongata, apice obtusula; anfract. 6 modice convexis, ultimo $\frac{1}{3}$ longitudinis æquante, basi subattenuato; apertura subverticali, oblonga; columella callosa, subtorta, basi fere verticaliter truncata; perist. simplice.*

Long. 7, diam. $2\frac{1}{2}$ mill.

Hab. Shang Hai, China (Fortune).

40. *ACHATINA ALBERSI* (GLANDINA), Pfr. *A. testa ovato-oblonga, tenui, longitudinaliter confertim striata, pellucida, pallide carnea; spira mediocri, conica, obtusa; sutura subsimplice; anfract. 5½-6 convexiusculis, ad suturam distinctius striatis, ultimo spira paulo longiore, basi attenuato; columella substrictè descendente, abrupte truncata; apertura subverticali, sinuato-semiovali; perist. simplice, acuto, margine dextro leviter arcuato.*

Long. 30, diam. 12 mill.

Hab. Gulf of California.

41. *PUPA PIRRIEI*, Pfr. *P. testa flexuose rimata, subcylindrica, solidula, nitidula, diaphana, albido-cerea; spira elongata, sursum vix attenuata, apice obtusa; anfract. 7½ lente accrescentibus, vix convexiusculis, hinc inde varicosis, superioribus levigatis, 2 ultimis capillaceo-striatis, ultimo ¼ longitudinis subæquante, basi gibboso-compresso et leviter scrobiculato; apertura verticali, truncato-oblonga, plicis 2 columellaribus profundis tertiaeque bicruri magna, longe intrante, margines peristomatis jungente coarctata; perist. albo, expanso, intus calloso, margine dextro intus subtuberculifero.*

Long. 10, diam. 3 mill.

Hab. Koondah Mountains, near Calicut (Pirrie).

42. *PUPA ALBERSI*, Pfr. *P. testa flexuose rimata, subperforata, oblonga, solidula, suboblique confertim costulata, opaca, alba; spira sursum dilatata, in conum brevem desinente; sutura crenulata; anfract. 9 planiusculis, ultimo non ascendente, ⅓ longitudinis subæquante, basi subattenuato, biscrebiculo; apertura verticali, plicis 5 coarctata: prima linguæformi juxta insertionem marginis dextri, secunda compressa, prominentiæ umbilicali transverse imposita, tertia dentiformi ad basin, quarta majore et quinta supra illam in margine dextro; perist. albo, sinuoso, undique expanso-reflexiusculo.*

Long. 15, diam. 7 mill.

Hab. Port Natal (Stanger).

43. *PUPA INDICA*, Pfr. *P. testa breviter rimata, cylindraceo-ovata, tenui, levissime striatula, oleoso-micante, fulvo-cornea; spira apice conoideo-rotundata; anfract. 5, superis 3 convexis, penultimo planiore, ultimo ⅓ longitudinis formante, basi compresso. antice biscrebiculo; apertura vix obliqua, oblonga, dentibus 4 coarctata: 1 plicæformi parietali, 1 columellari, 2 profundis, brevibus palatalibus; perist. albido, breviter expanso.*

Long. 2, diam. 1 mill.

Hab. Barrakpore, India.

44. *TORNATELLINA KÜSTERI*, Pfr. *T. testa subperforata, ovato-turrita, solidula, levissime striatula, subopaca, pallide virente; spira regulariter elongato-conica, apice obtusula; sutura lineari, marginata; anfract. 6 subplanis, ultimo ⅔ longitudinis paulo superante, basi rotundato; apertura obliqua, semiovali; lamella*

parietali compressa, obliqua, longe intrante; columella acute dentata; perist. simplice, acuto, margine columellari reflexo, patente.
 Long. 8 diam. 4 mill.
 Hab. — ?

45. *CLAUSILIA BORNEENSIS*, Pfr. *Cl. testa subrimata, turrita, solidula, oblique capillaceo-striata, sericea, fusco-cornea; spira regulariter attenuata, apice acutiuscula; sutura profunda; anfract. 11½ convexis, ultimo angustiore, basi rotundato, leviter sulcato; apertura pyriformi, intus fulva; lamellis mediocribus, convergentibus, infera arcuatim ascendente; lunella imperfecta, e pliculis nonnullis brevibus composita; plica palatali 1 supera, subcolumellari inconspicua; perist. continuo, soluto, albo, undique expanso et reflexiusculo.*

Long. 22, diam. 4½ mill.

Hab. Sarawak, Borneo.

46. *CLAUSILIA EBURNEA*, Pfr. *Cl. testa profunde rimata, fusiformi-turrita, solida, lævigata, vix nitidula, candida; spira gracili, apice cornea, acutiuscula; anfract. 11½ planiusculis, ultimo antice tumido, juxta rimam gibboso-cristato; apertura subobliqua, rotundato-ovali, intus fulva; lamellis subæqualibus, infera oblique ascendente, simplice; lunella et plica subcolumellari inconspicuis; plica palatali 1 supera; perist. carneo, continuo, libero, undique breviter reflexo.*

Long. 18, diam. 4 mill.

Hab. White Mountains, Crete (Spratt).

47. *CLAUSILIA NIVEA*, Pfr. *Cl. testa profunde rimata, ventroso-fusiformi, solida, lævigata, alba; spira apice attenuata, cornea, obtusula; anfract. 11 convexiusculis, ultimo juxta suturam subsulcato, antice costulato-striato, basi tumido, juxta rimam arcuato-cristato; apertura vix obliqua, pyriformi-oblonga, intus fulvida; lamella supera compressa, altera callosa, obliqua, dentiformi; lunella et plica subcolumellari inconspicuis; plica palatali 1 supera; perist. continuo, breviter soluto, expanso, margine externo subsinuato, intus subdentato.*

Long. 15, diam. 5 mill.

Hab. Eubœa (Spratt).

48. *VITRINA HELICIFORMIS*, Pfr. *V. testa subperforata, depressoglobosa, subheliciformi, tenuissima, membranacea, radiato-rugata et striis spiralibus minutissimis sub lente sculpta, pellucida, virenti-cornea; spira subconoidea, superne erosa, alba; anfract. 5 vix convexiusculis, sensim accrescentibus, ultimo peripheria subangulato, basi inflato; apertura fere diagonali, rotundato-lunari; perist. simplice, marginibus dextro et basali subinflexis, columellari fere verticali, superne subreflexo.*

Diam. maj. 17, min. 14, alt. 10.

Hab. Mount Ophir (Dr. Traill).

49. *VITRINA HYALINA*, Pfr. *V. testa depressoglobosa, tenuissima,*

laevigata, pellucida, virenti-hyalina; spira parum elevata, obtusula; anfract. fere 4 convexiusculis, ultimo ad suturam levem, marginatam distanter radiato-striato, basi rotundato, latiusculo; apertura diagonali, lunato-rotundata; perist. simplice, margine dextro antrorsum subdilatato, columellari perarcuato.

Diam. maj. 7, min. $5\frac{1}{2}$, alt. $3\frac{1}{2}$ mill.

Hab. Moreton Bay, Australia (Strange).

50. *SUCCINEA STRIGATA*, Pfr. *S. testa ovato-acuminata, tenui, longitudinaliter striata, vix nitidula, rufo-cornea, strigis angustis pallidis ornata; spira conica, acutiuscula; anfract. 3 convexis, ultimo $\frac{3}{5}$ longitudinis subaequante, inflato; columella callosa, substricta, parum recedente; apertura obliqua, subregulariter ovuli, vix angulata, praeter partem supremam incumbente; perist. simplice, marginibus callo junctis, subaequaliter arcuatis.*

Long. $9\frac{1}{2}$, lat. $6\frac{1}{2}$, alt. 4 mill.

Hab. Port Clarence, Behring's Straits.

51. *SUCCINEA PUNCTATA*, Pfr. *S. testa depresso ovata, longitudinaliter regulariter striata, rugis nonnullis elevationibus, nitida, pellucida, virenti-vel rufo-fusca, seriebus arcuatis punctorum luteorum ornata; spira brevi, conica; anfract. $2\frac{1}{2}$, penultimo convexo, ultimo magno, dilatato; columella subcallosa, leviter arcuata, angulum obtusum formante; apertura obliqua, ovali, incumbente, superne subangulata, intus concolore, punctis pellucetibus; perist. simplice, levissime expansiusculo.*

Long. 17, lat. $11\frac{1}{2}$, alt. 7 mill.

Hab. Hawaii, Sandwich Islands (Newcomb).

52. *SUCCINEA NEWCOMBI*, Pfr. *S. testa subsemiovali, tenui, striis incrementi confertis et rugis nonnullis fortioribus, lineisque spiralis irregularibus, minutis sculpta, parum nitida, corneo-rubella vel pallide cornea; spira minuta, papillata; anfract. 2, ultimo magno, subinflato, fere totam testam formante; columella subcallosa, regulariter arcuata; apertura parum obliqua, rotundato-ovalis, non omnino incumbente, intus submargaritacea; perist. simplice, marginibus fere symmetricis.*

Long. 12, lat. 10, alt. 6 mill.

Hab. Molokai, Sandwich Islands (Newcomb).

53. *SUCCINEA TOMENTOSA*, Pfr. *S. testa oblongo-conica, tenui, pilis brevibus tomentosa, non nitente, pellucida, pallide cornea; spira conica, acuta; anfract. 3, secundo convexo, ultimo $\frac{3}{4}$ longitudinis formante, basi attenuato; columella subcallosa, levissime plicata, arcuata; apertura parum obliqua, acuminato-ovalis, subincumbente; perist. simplice, expansiusculo.*

Long. 8, lat. 5, alt. $3\frac{2}{3}$ mill.

Hab. New Zealand (Strange).

54. *SUCCINEA CEYLANICA*, Pfr. *S. testa ovato-conica, solidula, distincte striata, diaphana, hyalino-albida, plerumque luto obducta;*

spira conica, submucronata; anfract. 3 cum apice punctiformi, superis convexis, ultimo $\frac{3}{4}$ longitudinis formante, basi parum attenuato; columella angulatim a ventre anfractus penultimi recedente, substricta; apertura obliqua, angulato-ovali; perist. simplice, margine dextro regulariter arcuato.

Long. $7\frac{1}{2}$, lat. 4, alt. $3\frac{1}{2}$ mill.

Hab. Ceylon (Layard).

55. *Succinea Baconi*, Pfr. *S. testa semiovato-acuminata, tenuissima, longitudinaliter subundulato-plicata, pellucida, nitida, pallide cornea; spira parvula, submucronata; anfract. 2 cum apiculo punctiformi, penultimo convexo, ultimo $\frac{5}{8}$ longitudinis formante, basi subattenuato; columella filosa, superne subplicata; apertura obliqua, subregulariter acuminato-ovali, non incumbente; perist. simplice, margine dextro antrorsum arcuato.*

Long. 15, lat. 10, alt. 6 mill.

Hab. Calcutta (Bacon).

56. *Succinea vitrea*, Pfr. *S. testa ovato-conica, tenuiuscula, confertim plicato-striata, nitida, albo-hyalina; spira conica, subpapillata; anfract. 3 convexis, ultimo $\frac{2}{3}$ longitudinis formante, inflato, basi attenuato; columella filosa, arcuata; apertura parum obliqua, incumbente, ovali, superne vix angulata; perist. simplice, marginibus callo opaco junctis, subsymmetricis.*

Long. 12, lat. 8, alt. 5 mill.

Hab. Calcutta (Bacon).

57. *Succinea daucina*, Pfr. *S. testa ovato-conica, solidula, leviter striatula, oleoso-micante, lutescenti-rubella; spira conica, apice subpapillata; anfract. 3, penultimo convexo, ultimo $\frac{3}{5}$ longitudinis formante, basi parum attenuato; columella filari, leviter arcuata; apertura obliqua, incumbente, acuminato-ovali, basi lata; perist. simplice, marginibus subsymmetricis.*

Long. $9\frac{2}{3}$, lat. 6, alt. $4\frac{1}{2}$ mill.

Hab. Calcutta (Bacon).

2. DESCRIPTIONS OF THREE NEW SPECIES OF PYTHIA.

By DR. L. PFEIFFER.

1. *Pythia Macgillivrayi*, Pfr. *P. testa subperforata, elliptico-acuminata, tenuiuscula, sublaevigata, nigra; spira elongata, concaviusculo-conica, acuta; varicibus albis, castaneo submaculatis; anfract. 9 planis, ad suturam arcuato-striatis, antice valde descendentibus, ultimo spira vix longiore, basi attenuato; apertura subverticali, angustissima; dentibus parietalibus 2, superiore parvo, trigono, altero compresso, intrante, simplice; plica columellari tenui, compressa, arcuatim ascendente; perist. acuto, margine dextro superne recto, infra medium expansiusculo, intus*

dentibus 2 subæqualibus munito, columellari dilatato, umbilicum fere vel omnino claudente.

Long. 24, diam. max. 11, min. 9 mill.

Hab. Isle of Aneiteum, New Hebrides (Macgillivray).

2. *PYTHIA OVATA*, Pfr. *P. testa profunde rimata vel aperte umbilicata, compresse ovato-acuminata, solidula, striatula, pallida, livido-nebulosa et maculis castaneis marmorata; spira convexiusculo-conica, acuta; varicibus albis, macula æquilata nigro-castanea, suturam non attingente, marginatis; anfract. 10 planiusculis, antice descendentibus, ad suturam arcuato-plicatis, ultimo spira paulo longiore, basi subcompresso; apertura verticali, intus albida; dentibus parietalibus 2, superiore triangulari, bicorni, altero valido, simplice, oblique descendente; plica columellari compressa, obliqua; perist. pallide livido, marginibus callo tenui, nitido junctis, dextro superne subsimplice, tum incrassato, reflexo, intus callo albo, inæqualiter 5-dentato munito, columellari per-dilatato, patente.*

Long. 31, diam. max. 26, min. $23\frac{1}{2}$ mill.

Hab. —?

3. *PYTHIA CELEBENSIS*, Pfr. *P. testa anguste umbilicata, ovato-conica, solida, irregulariter striata, subunicolore saturate fulva; spira conica, acuta; varicibus fulvo-luteis; anfract. 10 planiusculis, antice descendentibus, ad suturam valide arcuato-plicatis, ultimo spiram subæquante, basi subcompresso; apertura subobliqua, intus livido-carnea, nitida; dentibus parietalibus 2, superiore subtrigono, altero valido, compresso, subobliquo; plica columellari parvula, dentiformi, arcuatim ascendente; perist. livido-limbato, marginibus callo tenuissimo junctis, dextro superne subsimplice, tum breviter expanso et reflexiusculo, intus callo lato, carneo, inæqualiter 5-dentato munito, columellari crasso, sinuoso-patente.*

Long. 33, diam. max. 18, min. 15 mill.

Hab. Celebes.

3. DESCRIPTIONS OF EIGHTEEN NEW SPECIES OF CYCLOSTOMACEA, FROM MR. CUMING'S COLLECTION.

By DR. L. PFEIFFER.

1. *CYCLOSTOMA CHINENSE* (CYCLOTUS?), Pfr. *C. testa umbilicata, convexo-depressa, solida, striata, sub epidermide fusciscenti-fulva alba, obsolete fasciata; spira convexa, vix conoidea, apice subtili; anfract. 4 convexis, rapide accrescentibus, ultimo terete; umbilico conico, $\frac{1}{2}$ diametri occupante; apertura subverticali, circulari, intus margaritacea; perist. continuo, breviter adnato, duplice: interno haud porrecto, externo breviter patente, obtuso. — Operc. —?*

Diam. maj. 14, min. $11\frac{1}{2}$, alt. 8 mill.

Hab. Hong Kong, China (Mr. Fortune).

2. *CYCLOSTOMA MONTANUM* (CYCLOTUS?), Pfr. *C. testa umbilicata, turbinato-depressa, solida, superne confertim spiraliter lirata, alba, fusculo obsolete maculata et fasciata; spira turbinata, acutiuscula; anfract. 4 convexis, rapide accrescentibus, ultimo non descendente, subtus laevigato, in umbilico mediocri, profundo, spiraliter striato; apertura parum obliqua, angulato-rotundata; perist. simplice, recto, breviter adnato, margine columellari reflexiusculo.—Operc. —?*

Diam. maj. $12\frac{1}{2}$, min. 10, alt. 8 mill.

Hab. Neilgherries.

3. *CYCLOSTOMA BIROSTRE* (CYCLOTUS), Pfr. *C. testa umbilicata, depressa, subdiscoidea, solidula, irregulariter striata, fulvo-lutea, fascia peripherica castanea et superne strigis latis angulatis ornata; spira plana, vertice subtili, vix prominulo; anfract. fere 5 convexiusculis, rapide accrescentibus, ultimo terete, subtus obsolete maculato, antice soluto et tubulo antrorsum curvato munito; umbilico lato, anfractus omnes latiores et convexiores monstrante quam superne; apertura diagonali, circulari; perist. duplice, interno brevi, recto, externo expanso et inflexo, superne in rostrum apertum, anfractum ultimum tangentem, producto.—Operc. album, arctispirum, extus concavum.*

Diam. maj. 26, min. 19, alt. 7 mill.

Hab. Sarawak, Borneo.

4. *CYCLOSTOMA PTEROCYCLOIDES* (CYCLOTUS), Pfr. *C. testa umbilicata, depressa, subdiscoidea, solidula, striatula et stris spiralibus sub lente decussata, lutea, strigis angulatis castaneis picta; spira plana, vertice mucronatim prominulo; anfract. 5 rapide accrescentibus, parum convexis, ultimo depresso-rotundato, antice soluto et spiraculo antrorsum vix ascendente munito; umbilico profundo, $\frac{1}{3}$ diametri superante; apertura diagonali, circulari; perist. duplice, interno vix porrecto, superne leviter emarginato, externo dilatato, rectangule patente, limbo subinflexo, superne subangulatim producto.—Operc. —?*

Diam. maj. 25, min. 19, alt. 7 mill.

Hab. —?

5. *CYCLOSTOMA FLORIDUM* (CYCLOPHORUS), Pfr. *C. testa anguste umbilicata, globoso-turbinata, tenuiuscula, oblique levissime striatula, albida, maculis sagittæformibus fuscis, interdum in strigas angulosas confluentibus, conspersa; spira turbinata, acutiuscula, apice sæpe nigro-cornea; anfract. 5 convexis, ultimo rotundato, infra peripheriam fascia castanea, deorsum dissoluta, teniato; apertura obliqua, subcirculari; perist. simplice, breviter expanso, marginibus callo brevi junctis, sinistro subreflexo.—Operc. —?*

Diam. maj. 30, min. 24, alt. 20 mill.

Hab. —?

6. *CYCLOSTOMA EXALTATUM* (CYCLOPHORUS), Pfr. *C. testa*

umbilicata, globoso-turbinata, tenuiuscula, oblique striata, nigro-castanea, strigis angulosis pallidis notata; spira elevato-turbinata, acutiuscula; anfract. 5 regulariter accrescentibus, convexis, ultimo rotundato, peripheria pallide subfasciata; apertura vix obliqua, subcirculari, intus cærulescenti-albida; perist. simplice, albo, marginibus callo brevi junctis, dextro perarcuato, breviter expanso, sinistro supra partem umbilici perangusti fornicatim patente.—Operc. —?

Diam. maj. 25, min. 21, alt. 19 mill.

Hab. Hong Kong, China (*Mr. Fortune*).

7. *CYCLOSTOMA SUMATRENSE (CYCLOPHORUS)*, Pfr. *C. testa umbilicata, depresso-turbinata, tenui, spiraliter tenuissime striata, nitidula, fusca, ad suturam maculis alternis castaneis et pallidis tæniata, infra peripheriam fasciis 2 articulatis ornata; spira breviter turbinata, acutiuscula; anfract. 5 rapide accrescentibus, superis convexiusculis, ultimo turgido, peripheria subcarinato; umbilico mediocri, infundibuliformi; apertura obliqua, subcirculari, intus margaritacea; perist. albo, simplice, subcontinuo, breviter adnato, superne et ad dextram late expanso et revoluto, margine sinistro minus dilatato.—Operc. fulvum.*

Diam. maj. 45, min. 34, alt. 23 mill.

Hab. Pedang, Island of Sumatra (*Capt. A. Martin*).

8. *CYCLOSTOMA TENIATUM (CYCLOPHORUS)*, Pfr. *C. testa umbilicata, globoso-turbinata, solida, oblique confertim striata, parum nitente, albida, fasciis variis atrofusciis interruptis et maculatis tæniata; spira turbinata, acutiuscula; anfract. 5 convexis, ad suturam complanatis, minute maculatis, ultimo turgido, infra peripheriam carina funiformi, nonnullisque fasciis latioribus cincto, basi planiore; umbilico angusto, pervio; apertura obliqua, subcirculari, intus albida, fasciis perluculentibus; perist. simplice, recto, continuo, breviter adnato, superne subangulato, margine dextro untrorsum dilatato, sinistro incrassato, subpatente.—Operc. rubello-fulvum.*

Diam. maj. 28, min. 24, alt. 18 mill.

Hab. Sumatra.

9. *CYCLOSTOMA CEREUM (CYCLOPHORUS ?)*, Pfr. *C. testa perforata, conoideo-globosa, solidula, leviter striata, parum nitente, virenti-cerea; spira conoidea, obtusula; anfract. 4 convexis, ultimo rotundato; apertura parum obliqua, subangulato-circulari; perist. continuo, breviter adnato, margine dextro recto, columellari subincrassato.—Operc. —?*

Diam. maj. $6\frac{2}{3}$, min. 6, alt. 5 mill.

Hab. —?

10. *CYCLOSTOMA DEPLANATUM (CYCLOPHORUS ?)*, Pfr. *C. testa late umbilicata, depressa, subdiscoidea, solida, confertim striatula, nitida, fusco-lutea vel castanea, fascia unica peripherica, lutea cincta; spira vix prominula, vertice subtili; sutura profunda;*

anfract. 5 rotundatis, ultimo terete, antice sensim descendente; apertura obliqua, subcirculari, intus alba; perist. continuo, incrassato, expansiusculo, subduplicato, breviter adnato, margine columellari regulariter arcuato.—Operc. —?

Diam. maj. $27\frac{1}{2}$, min. 23, alt. 8 mill.

Hab. Koondah mountains, India (Mr. Pirrie).

11. *CYCLOSTOMA SEMICLAUSUM* (LEPTOPOMA), Pfr. *C. testa perforata, globoso-turbinata, tenuiuscula, striis obliquis et spiralibus minute decussata, albida, flammis latis angulosis fusco-viridibus et fasciis inframedianis nonnullis saturatioribus picta; spira elata, turbinata, acutiuscula; anfract. 5 convexis, rapide accrescentibus; apertura obliqua, fere circulari; perist. duplici: interno expansiusculo, incumbente, externo rectangule patente, ad perforationem reflexo, eam fere claudente.*—Operc. *virentifulum.*

Diam. maj. 13, min. 10, alt. 10 mill.

Hab. Ceylon (Mr. Thwaites).

12. *CYCLOSTOMA SEHELLARUM* (LEPTOPOMA?), Pfr. *C. testa anguste umbilicata, globoso-conica, tenuiuscula, radiato-striata, pluricarinata, fusciscenti-albida; spira turbinata, acutiuscula; anfract. 5 convexis, rapide accrescentibus, ultimo carinis 2–3 majoribus (maxima peripherica, aliis superis) lirisque spiralibus basi confertioribus munito; apertura vix obliqua, subcirculari; perist. simplice, breviter expanso, marginibus approximatis.*—Operc. —?

Diam. maj. 12, min. 10, alt. 10 mill.

Hab. Seychelles Islands.

13. *CYCLOSTOMA PÆCILUM* (LEPTOPOMA), Pfr. *C. testa perforata, turbinata, tenuiuscula, oblique striata, virenti-lutea, flammis albidis et lineis spiralibus nigricantibus ornata; spira turbinata, apice acutiuscula, nigricante; anfract. 5 convexis, sensim accrescentibus, ultimo peripheria rotundato, basi planiusculo, circa perforationem punctiformem excavato; apertura parum obliqua, subcirculari; perist. simplice, recto, marginibus approximatis.*—Operc. *corneum.*

Diam. maj. 8, min. $6\frac{2}{3}$, alt. 6 mill.

Hab. Ceylon (Mr. Thwaites).

14. *CYCLOSTOMA KIENERI* (CYCLOSTOMUS?), Pfr. *C. testa umbilicata, depressa, solida, radiatim conferte striata, superne liris sub 5 carinæformibus munita, parum nitida, rufa, albido-marmorata; spira brevi, subturbinata, apice nigra, acutiuscula; anfract. 5 convexis, celeriter accrescentibus, ultimo antice descendente, juxta suturam subexcavato, peripheria subobtusè carinato, basi lævigato; umbilico profundo, $\frac{1}{3}$ diametri subæquante; apertura perobliqua, angulato-rotundata, intus ignea; perist. continuo,*

subrecto, crasso, obtuso, superne angulatim producto, adnato.—

Operc. — ?

Diam. maj. $19\frac{1}{2}$, min. 16, alt. 9 mill.

Hab. Madagascar.

15. *CYCLOSTOMA GRADATUM* (*CYCLOSTOMUS* ?), Pfr. *C. testa perforata, globoso-conica, solidula, radiato-striata et spiraliter lirata (liris inæqualibus, juxta suturam subtilibus, tum 1–3 validis carinæformibus, reliquis obtusis), pallide lutescente; spira turbinata, gradata, acutiuscula; anfract. 5 angulato-convexis, ultimo basi inflato; apertura parum obliqua, subangulato-circulari; perist. albo, subincrassato, continuo, breviter adnato, vix expansiusculo.*—*Operc.* — ?

Long. 7, diam. 5 mill.

Hab. Ceylon (*Mr. Thwaites*).

16. *CATAULUS DUPLICATUS*, Pfr. *C. testa subperforata, fusiformi-ovata, solida, striata striisque spiralibus obsolete decussata, virescenti-fusca, pallide nebulosa; spira curvilineari, elongata, apice acutiuscula; sutura levi, marginata; anfract. $7\frac{1}{2}$ vix convexiusculis, ultimo attenuato, antice subascendente; carina basali compressa, antrorsum vix dilatata; apertura circulari, basi axin vix excedente; perist. aurantiaco, duplice: interno breviter porrecto, basi profunde inciso, externo rectangule patente, basi ad canalem angustum vix protracto.*

Long. 18, diam. 7 mill.

Hab. Ceylon (*Mr. Thwaites*).

17. *DIPLOMMATINA MACGILLIVRAYI*, Pfr. *D. testa sinistrorsa, breviter rimata, oblongo-ovata, tenui, diaphana, pallide cornea; spira turgida; anfract. 6 convexis, superis 2 apicem subpapillatum formantibus, sequentibus 2 distanter cordato-costulatis, penultimo latissimo, confertius costulato, ultimo antice ascendente, $\frac{1}{3}$ longitudinis paulo superante, confertissime costulato, basi rotundato; apertura vix obliqua, subcirculari; perist. duplice: interno appresso, externo breviter et æqualiter expanso.*

Long. 6, diam. 3 mill.

β. *Violaceo-fusca, anfr. ultimo pallide unifasciato.*

Hab. Lord Howe's Island, Australian seas (*Mr. Macgillivray*).

18. *DIPLOMMATINA CAPILLACEA*, Pfr. *D. testa sinistrorsa, breviter rimata, ovato-conica, tenui, capillaceo-striata, pellucida, haud nitente, pallide cornea; spira turgida, sursum conica, apice acutiuscula; anfract. 6 convexiusculis, penultimo latissimo, ultimo antice ascendente, $\frac{1}{3}$ longitudinis paulo superante, basi rotundato; apertura subverticali, circulari; perist. albo, expanso, indistincte duplicato, marginibus callo junctis.*

Long. 5, diam. $2\frac{3}{4}$ mill.

Hab. Lord Howe's Island, Australian seas (*Mr. Macgillivray*).

4. A MONOGRAPH OF THE GENERA REALIA AND HYDROCENA.
BY DR. L. PFEIFFER.

These two genera are closely allied by the common character of the *ovate, few-whorled, horny operculum*, but they may be separated by the characters of the mouth and columella.

I. REALIA.

Gray, in Proc. Z. S. 1847, p. 182; & 1849, p. 167; Pfr. Consp. Cycl. p. 47; Mon. Pneumonoph. p. 305.

Liarea, Gray, Cat. Phaneropneum. Br. Mus. p. 217.

Shell turreted, rather smooth or striated; aperture ovate; peristome continuous, double.

1. REALIA EGEEA, Gray, 1849; Pfr. Mon. Pneum. p. 305.

Liarea Egea, Gray, 1852. (New Zealand.)

2. REALIA TURRICULATA, Pfr. *R. testa subperforata, gracili, turrata, solidula, striatula, parum nitente, nigricante, fascia pallida basali notata vel strigis angulosis nigro-castaneis et luteo-albis alternantibus ornata, basi nigricante; spira elongata, apice obtusula; anfract. 7-7½ modice convexis, ultimo ⅓ longitudinis subæquante, basi obsolete subangulato; apertura verticali, angulato-ovali; perist. continuo, duplice: interno breviter porrecto, externo anguste expanso, inflexo.*

Long. 9, diam. 3⅔ mill.

Hab. New Zealand.

3. REALIA VENTRICOSA, Hombr. and Jacq. (*Cyclostoma ventricosum*, H. et J. Voy. Pole Sud, Atl. t. 12. f. 34-36?) *R. testa subperforata, turrato-oblonga, tenuiuscula, sub lente confertissime striata, vix nitidula, fusca vel cornea; spira elongata, subventricosa, apice acutiuscula; anfract. 7 convexis, ultimo ⅓ longitudinis subæquante, infra medium obsolete angulato; apertura parum obliqua, ovali; perist. continuo, indistincte duplicato, margine dextro expansiusculo, sinistro strictiusculo, adnato.*

Long. 7, diam. 3 mill.

Hab. Taiti (Jacq.); Marquesas Islands (H. Cuming).

4. REALIA RUBELLA, Pfr. *R. testa subperforata, turrato-oblonga, solida, lævigata, pallide rubella; spira elongata, superne attenuata, acuminata, sutura profunda; anfract. 8 convexis, quasi strangulatis, ultimo ⅓ longitudinis non attingente, obsolete angulato; apertura vix obliqua, angulato-ovali; perist. continuo, breviter adnato, duplicato: externo subincrassato, patente.*

Long. 8, diam. 3 mill.

Hab. Marquesas Islands (H. Cuming).

II. HYDROCENA.

Pfr. in Zeitschr. f. Malak. 1847, p. 112.

Realia, Gray, *Cycloph.* Brit. Mus. 1850 (part).

Hydrocæna, Shuttl. Diagn. Moll. Nr. 1. p. 11.

Shell imperforate or umbilicate, globose-turbinate, ovate or turreted; aperture ovate or semicircular; peristome simple, straight or expanded, with disjoined margins.

A. HYDROCENA, Parr.

(Shell imperforate or subperforate; base of the last whorl not keeled; columellar margin rather callous.)

1. HYDROCENA MINUTISSIMA, Sow.; Pfr. in Z. f. M. 1847, p. 112.

Cyclostoma minutissimum, Sow.

Realia minutissima, Gray.

Leptopoma? *minutissimum*, Pfr. Mon. Pneum. p. 118 (Pitcairn Islands).

2. HYDROCENA GUTTA, Shuttl. Diagn. p. 11.

Realia? *gutta*, Pfr. Mon. Pneum. p. 305 (Teneriffe).

3. HYDROCENA CATTAROENSIS, Pfr. in Z. f. M. 1847, p. 112.

Cyclostoma Cattaroënsse, Pfr. in Wieg. Arch. 1841, i. p. 225.

Hydrocæna Sirkii, Parr. in sched.

Realia Cattaroënsis, Gray, 1850 (Dalmatia).

4. HYDROCENA BRIDGESI, Pfr. *H. testa vix subperforata, ovato-conica, solida, lævigata, daucino-rubra; spira conica, apice acuta; sutura lineari; anfract. 7 planis, ultimo spiram æquante, basi rotundato; apertura vix obliqua, acuminato-ovali, basi subeffusa; perist. simplice, recto, marginibus callo tenuissimo junctis, columellari subreflexo.*

Long. $10\frac{1}{2}$, diam. 6 mill.

Hab. under stones in damp places, Valdivia (*Bridges*).

5. HYDROCENA SOLIDULA, Pfr. *H. testa subperforata, ovato-conica, solidula, sublævigata, irregulariter erosa, haud nitente, cerea; spira convexo-conica, apice acuta; anfract. 6 subplanis, ultimo spira paulo brevior, obsolete angulato, basi convexiusculo; apertura verticali, angulato-ovali; perist. simplice, recto, margine columellari subincrassato.*

Long. 6, diam. 4 mill.

Hab. Lord Hood's Island.

6. HYDROCENA OBLONGA, Pfr. *H. testa subperforata, oblongo-conica, solida, striatula, opaca, fulvo-albida; spira ovato-conica, apice acuta; sutura marginata; anfract. 6 convexiusculis, ultimo $\frac{1}{3}$ longitudinis paulo superante, convexiore, peripheria filocarinato, juxta perforationem punctiformem subcompressa; apertura verti-*

cali, angulato-rotundata, intus aurantiaca; perist. simplice, recto, margine columellari calloso, subpatente.

Long. $6\frac{1}{2}$, diam. 3 mill.

Hab. Marquesas Islands.

7. *HYDROCENA CORNEA*, Pfr. *H. testa subperforata, ovato-conica, solidula, laevigata, nitida, fulvo-cornea; spira conica, apice acuta; sutura impressa, submarginata; anfract. $6\frac{1}{4}$ convexiusculis, ultimo spira paulo brevior, periphæria obsoletissime angulato, juxta perforationem punctiformem vel clausam subcompresso; apertura obliqua, angulato-ovali, basi subeffusa; perist. subsimplice, margine dextro recto, columellari calloso, subappresso.*

Long. 10, diam. 5 mill.

Hab. Borneo and Bashee Island (Sir E. Belcher).

8. *HYDROCENA ALBESCENS*, Pfr. *H. testa subperforata, ovato-conica, solidula, sublavigata, albida vel pallide lutescente; spira convexo-conica, apice acuta; anfract. 6 convexiusculis, ultimo spira paulo brevior, infra medium obsolete subangulato, basi rotundato; apertura subverticali, angulato-ovali; perist. simplice, recto, margine columellari calloso, subappresso.*

Long. 7, diam. 4 mill.

Hab. Island of Opara.

9. *HYDROCENA OBTUSA*, Pfr. *H. testa imperforata, conico-ovata, tenuiuscula, striatula, nitida, fulvo-cornea; spira conica, obtusa; sutura marginata; anfract. 5 planiusculis, ultimo spira paulo longior, ventroso; apertura subverticali, angulato-semiovali; perist. simplice, recto, margine columellari calloso, reflexo, appresso.*

Long. $6\frac{1}{2}$, diam. 4 mill.

Hab. —?

10. *HYDROCENA BREVICULA*, Pfr. *H. testa subimperfecta, globoso-conica, solidula, sublavigata, corneo-fulva; spira convexo-conoidea, acutiuscula; sutura sulco profundo marginata; anfract. sub 6, superis planis, plerumque erosis, penultimo convexo, ultimo spira longior, inflato; apertura subverticali, angulato-semiovali; perist. recto, margine columellari calloso, appresso.*

Long. $8\frac{1}{2}$, diam. $5\frac{1}{2}$ mill.

Hab. Singapore.

11. *HYDROCENA PYRAMIS*, Pfr. *H. testa subperforata, oblongo-conica, solidula, irregulariter rugata, epidermide fulva obducta; spira convexo-conica, acuta; anfract. $5\frac{1}{2}$ convexiusculis, ultimo $\frac{2}{3}$ longitudinis subæquante, obsolete angulato, basi planiusculo; apertura vix obliqua, angulato-ovali; perist. simplice, recto, margine columellari recedente, calloso, subappresso.*

Long. 6, diam. 4 mill.

Hab. Singapore.

12. *HYDROCENA EXSERTA*, Pfr. *H. testa subperforata, ovato-*

turrita, solida, confertim striata, fusculo-cornea; spira elongato-conica, apice acuta; anfract. 6 convexiusculis, subcarinatis (carina ad suturam subexserta), ultimo $\frac{2}{3}$ longitudinis formante, peripheria angulato, basi compressiusculo; apertura vix obliqua, acuminato-rotundata; perist. subsimplice, margine dextro expansiusculo, superne leviter repando, columellari calloso, subreflexo.

Long. 7, diam. 4 mill.

Hab. Shanghai, China.

B. OMPHALOTROPIS, Pfr.

(*Realia*, Gray, 1852.)

(Shell perforated or umbilicated, with a keel round the umbilicus; peristome straight or expanded.)

13. HYDROCENA HIEROGLYPHICA, Fér.

Omphalotropis hieroglyphica, Pfr. Mon. Pneum. p. 306.

Hab. —?

14. HYDROCENA PUPOIDES, Ant.

Omphalotropis pupoides, Pfr. Mon. p. 307. (Opara.)

15. HYDROCENA TEREBRALIS, Gould.

Omphalotropis terebralis, Pfr. Mon. p. 307. (Tahiti and Eimeo.)

16. HYDROCENA ROSEA, Gould.

Omphalotropis rosea, Pfr. Mon. p. 308. (Feejee Islands.)

17. HYDROCENA VALLATA, Gould.

Omphalotropis vallata, Pfr. Mon. p. 308. (Tonga Tabou.)

18. HYDROCENA SCITULA, Gould.

Omphalotropis scitula, Pfr. Mon. p. 308. (Tahiti, Eimeo, Manua.)

19. HYDROCENA AURANTIACA, Desh.

Omphalotropis aurantiaca, Pfr. Mon. p. 309. (Pondicherry.)

20. HYDROCENA EXQUISITA, Pfr. *H. testa perforata, conica, tenui, confertim striata, vix nitidula, sordide fulva; spira elongata, concavo-conica, apice acuta; sutura submarginata; anfract. 6 $\frac{1}{2}$ convexiusculis, ultimo spira brevior, peripheria magis minusve distincte carinato, basi acute filocarinato; apertura obliqua, sub-ovali, superne et latere sinistro angulata, basi subeffusa; perist. simplice, recto, margine columellari sinuoso-patente.*

Long. 9, diam. 5 mill.

Hab. Lord Howe's Island, Australian Seas (*Macgillivray*).

21. HYDROCENA RUBENS, Quoy.

Omphalotropis rubens, Pfr. Mon. p. 309. (Isle of France.)

22. HYDROCENA EROSA, Quoy.

Omphalotropis erosa, Pfr. Mon. p. 310. (Guam.)

23. *HYDROCENA HUAHEINENSIS*, Pfr. *H. testa perforata, elongato-conica, solida, striatula et irregulariter pustulato-punctata, opaca, flavida vel fulvida; spira conica, apice acuta; anfract. 6½, superis planis, penultimo convexiusculo, ultimo ⅔ longitudinis subæquante, basi rotundato, juxta perforationem punctiformem carinato; apertura verticali, angulato-ovali; perist. tenui, margine dextro arcuato, recto, columellari minus arcuato, subpatente.*

Long. $9\frac{1}{2}$, diam. 5 mill.

Hab. Island of Huaheine.

24. *HYDROCENA DUBIA*, Pfr.

Omphalotropis dubia, Pfr. Mon. p. 310. (*Opara*, Real Llajos.)

25. *HYDROCENA RADIATA*, Pfr. *H. testa perforata, ovato-conica, tenuiuscula, sublevigata, nitida, diaphana, albida, fulvo irregulariter radiata; spira conica, apice acuta; sutura submarginata; anfract. 7 planiusculis, ultimo ⅔ longitudinis subæquante, ventroso, periphæria subangulato, juxta perforationem apertam carinato-compresso; apertura verticali, acuminato-ovali, basi subeffusa; perist. simplice, recto, margine columellari superne subdilatato.*

Long. $7\frac{1}{2}$, diam. 4 mill.

Hab. Borneo.

26. *HYDROCENA MULTILIRATA*, Pfr.

Omphalotropis multilirata, Pfr. Mon. p. 311. (*Mauritius*.)

27. *HYDROCENA GLOBOSA*, Bens.

Omphalotropis globosa, Pfr. Mon. p. 311. (*Mauritius*.)

28. *HYDROCENA MALLEATA*, Pfr. *H. testa subperforata, ovato-conica, solida, irregulariter malleata, carneo et albido variegata; spira conica, acuta; anfract. 6 planiusculis, ultimo spiram subæquante, ventroso, ad periomphalum carina funiformi munito; apertura parum obliqua, angulato-ovali, intus aurantiaca vel fulva; perist. subcalloso, margine dextro recto, basali subangulatim producto, columellari subpatulo.*

Long. 7, diam. $4\frac{1}{2}$ mill.

Hab. Australia.

29. *HYDROCENA GLABRATA*, Pfr. *H. testa perforata, ovato-conica, tenuiuscula, glabra, nitida, fulvo-cornea; spira convexo-conica, apice acuta; anfract. 7 convexis, ultimo spira brevior, rotundato, circa perforationem punctiformem filocarinato; apertura vix obliqua, ovali, superne vix angulata; perist. simplice, recto, margine columellari subdilatato, patente.*

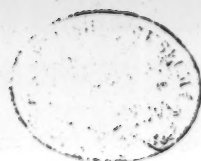
Long. $6\frac{1}{2}$, diam. 4 mill.

Hab. Island of Borneo.

30. *HYDROCENA PLICOSA*, Pfr.

Omphalotropis plicosa, Pfr. Mon. p. 311. (*Hab.* — ?)

31. *HYDROCENA GRANUM*, Pfr. *H. testa vix perforata, conico-*





J. Wolf, del.

M & N. Hanhart. Imp^r

ORTHOTOMUS DERBIANUS Moore

ovata, solidula, sublævigata, sordide fulva vel albido et fulvo zonata; spira conoidea, apice obtusula; anfract. 5 perconvexis, ultimo spira vix brevior, circa perforationem punctiformem distincte carinato; apertura subobliqua, ovali; perist. simplice, recto, margine columellari recedente, subpatulo.

Long. 5, diam. 3 mill.

Hab. Isle of Pines, Australian Seas (*Macgillivray*).

32. HYDROCENA EXPANSILABRIS, Pfr.

Omphalotropis expansilabris, Pfr. Mon. Pneum. p. 312. (Mauritius.)

5. DESCRIPTIONS OF TWO NEW SPECIES OF THE GENUS ORTHOTOMUS.

BY FREDERIC MOORE, ASSIST. MUS. EAST INDIA COMPANY.

(Aves, Pl. LXXVI.)

At a Meeting held in the early part of the present year, I had the honour of laying before this Society a monograph of this interesting genus, and since that time I have been favoured by my brother with a search, through the birds contained in the Derby Museum, which has resulted in the discovery of two additional undescribed species. These I now proceed to characterize.

ORTHOTOMUS DERBIANUS, Moore. (Pl. LXXVI.)

Forehead, crown and occiput dark ferruginous; back, rump and sides of neck ash-colour; ear-coverts, throat and breast pale ash, with the centre of the feathers whitish; flanks ashy-white; belly and vent dull white; wings brown, broadly margined throughout with yellowish-green; edge of shoulder pale brown; under wing-coverts rufescent-white; tail much graduated, ferruginous-brown above, dusky at base, paler beneath, and without discernible terminal spots or band; thighs ferruginous; upper mandible horn-colour, lower mandible and legs pale.

Length, $5\frac{1}{2}$ inches; of wing 2 inches; tail $2\frac{1}{2}$ inches; bill from frontal plumes $\frac{5}{8}$ ths inch, to gape $\frac{1}{12}$ ths inch, and tarsus $\frac{8}{10}$ ths of an inch.

Hab. Philippines? (H. Cuming). In Derby Museum, Liverpool.

Remark.—May be distinguished from all the previously known species by its greater size, and in having the ear-coverts, throat and breast ash-colour, with the centres of the feathers whitish.

ORTHOTOMUS MACULICOLLIS, Moore.

Forehead ferruginous, becoming dull on crown; feathers of the occiput greenish-brown, faintly edged with black; nares, behind the eyes, a line under, with the ear-coverts and sides of neck ferruginous-white, each feather being edged with black; back and rump

greenish; throat white; breast, belly and vent ferruginous-white; sides of breast black, and flanks light greenish; wings brown, edged exteriorly with greenish-ferruginous-brown; edge of shoulder and under wing-coverts pale rufescent-white; tail brown above on the inner webs, and yellowish on the outer, beneath pale ashy-brown, having indistinct dusky spots towards the end, and pale at the tips and inner margins of the feathers; thighs pale ferruginous. Bill, darkish horn above, paler beneath; legs yellowish.

Length, $4\frac{3}{10}$ inches; of wing $1\frac{8}{10}$ in.; tail $1\frac{8}{10}$ in.; bill to gape $\frac{5}{8}$, and tarsus $\frac{8}{10}$ of an inch.

Hab. Malacca. In Derby Museum, Liverpool.

Remark.—Allied to, but distinguished from *O. longicauda* by having the sides of the head and neck ferruginous-white, each feather being edged with black.

6. ABSTRACT OF DESCRIPTIONS OF SOME ANIMALS OF ACHATINELLA, AND OTHER REMARKS.

By DR. NEWCOMB.

ACHATINELLA VIRIDANS, Mighels. Colour light grey, with two stripes of dark slate, extending back from the base of the superior tentacles. Tentacles strongly clubbed, rather short and robust; mantle thick, of a yellowish-brown colour. When in motion longer than the shell.

(Shell always dextral. *Hab.* E. end of Oahu.)

ACHATINELLA DECIPIENS, Nob. Animal slate colour; upper portion of tentacles intensely black; mantle and bottom of foot light slate.

(Shell often reversed. *Hab.* S.W. side of Oahu.)

ACHATINELLA RUTILA, Nob. Animal small for the size of the shell, with long filiform tentacles, but slightly clubbed; colour *light flesh*.

ACHATINELLA SUBVIRENS. Animal not observed.

ACHATINELLA RADIATA, Gould. Resides more than 100 miles from *A. grisea*, and on a different island. The former is *terrestrial*, the latter *arboreal* in its habits. The first is usually dextral, the latter *always* sinistral. No comparison of the animals was made.

ACHATINELLA RUBIGINOSA, Nob. Has the mantle uniformly of a light flesh colour, &c. *A. taniolata*, Pfeiffer, has the mantle always of a *dark brown* or *black*.

ACHATINELLA GLABRA. No description, but is a very distinct species from *A. elegans*, never being found associated in the same localities; the first is always dextral, the latter as often sinistral as dextral.

ACHATINELLA RUBENS, Gould. Animal slate-coloured, traversed

when extended by numerous light-coloured lines; tentacles black; bottom of foot and mantle brown. Motions slow and timid.

Hab. Oahu.

ACHATINELLA MASTERSI (var. from Molokai). Animal longer than the shell; of a light flesh-colour, covered with minute granulations, tipped with carmine; tentacles dark brown or black.

This animal is the most beautiful of the genus. Motions bold and lively. Lives on the *Olova*, or native hemp, a large shrub. *A. rubens* is found only on the ground.

ACHATINELLA PERDIX, Reeve. An arboreal species, often sinistral; inhabits West Mani. *A. Adamsi* is usually found on the ground; only a single specimen out of five hundred is sinistral, and this shows a greater variation from *perdix* than the dextral shells; six or seven varieties of *perdix* do not in any way identify the two species.

ACHATINELLA PICTA, Mighels. Animal densely black; tentacles long, slate-coloured; mantle and foot brownish-black.

Hab. Mani.

ACHATINELLA TETRAO, Nob. Animal tessellated above with brown and white; mantle dirty yellow; bottom of foot of same colour, margined with white. Tentacles light brown.

Hab. Ranai. (Not published.)

ACHATINELLA HELENA, Nob., is extremely limited in its locality, which has been twice carefully searched by myself, without discovering larger specimens, dead or alive, that approach it in form. Several of the specimens contained the young in the oviducts.

ACHATINELLA PHYSA, Nob. No opportunity has occurred for examining the animal, but it is probably adult.

ACHATINELLA VIRGULATA, Mighels. Animal, including mantle and tentacles, varying from bluish to yellowish-white.

ACHATINELLA REDFIELDI, Nob. Animal light flesh-colour; mantle dark slate.

ACHATINELLA TESSELLATA, Nob. Animal very large, dark slate, with a black mantle.

7. DESCRIPTIONS OF TWENTY-SEVEN NEW SPECIES OF SHELLS FROM THE COLLECTION OF HUGH CUMING, ESQ.

BY ARTHUR ADAMS, F.L.S.

1. TRITON (*CABESTANA*) *BOLTENIANUS*, A. Adams. *T. testa ovato-ventricosa, subumbilicata, cinereo-fulvicante, epidermide fusca oblecta; anfractibus plicato-nodosis, lineis elevatis, corrugatis, transversim liratis, liris inæqualibus; apertura ovata,*

labio corrugato-plicato, canali brevi aperto, labro expanso fimbriato, intus dentato-plicato.

Hab. Australia. (Mus. Cuming.)

The whorls in this species are nodosely plicate in the middle, and the surface of the shell throughout is corrugated longitudinally.

2. TRITON (CABESTANA) AFRICANUS, A. Adams. *T. testa ovato-rentricosa, umbilicata, albido-cinerascente, rufo fuscoque variegata, anfractibus spiratis, supremis liris tribus elevatis, nodulosis, spiralibus cinctis, ultimo sublævigato, cingulis transversis, subobsoletis ornato, dorso nodoso, latere sinistro longitudinaliter varicoso, varice nodoso, fusco alboque articulado; apertura ovali, labio lævi, labro margine extus varicoso ac nodoso-lirato, intus plicato.*

Hab. Ichaboe; South Africa. (Mus. Cuming.)

A remarkable-looking shell, with the last whorl nearly smooth, and the upper whorls with spiral elevated ridges.

3. TRITON PYRIFORMIS, A. Adams. *T. testa pyriformi, straminea, albo rufoque variegata, spira brevi, obtusa, anfractibus quinque, transversim liratis, in medio serie duplicata tuberculorum instructis, anfractu ultimo longitudinaliter subplicato; apertura ovata, labio transversim corrugato, canali mediocri, recurro, aperto, labro extus varicoso, intus plicato-lirato.*

Hab. China. (Mus. Cuming.)

This species is pyriform, with a double row of compressed tubercles in the middle of each whorl. There are no regular varices, and the canal is recurved.

4. TRITON COMPTUS, A. Adams. *T. testa fusiformi, sordide carnea, varicibus albo rufoque variegatis; spira elevata, anfractibus rotundatis, transversim crebre liratis, valde nodosoplicatis, varice unico instructis; anfractu ultimo nodulis duobus elevatis ad dorsum ornato; apertura ovata, labio transversim corrugato, canali longo, tenui, recurro, labro extus varicoso, intus dentato-lirato.*

Hab. China. (Mus. Cuming.)

This species is of a dirty flesh-colour, with the varices variegated with white and fuscous; the canal is slender, and recurved, and there are two elevated nodules on the back of the last whorl.

5. TRITON OBSCURUS, A. Adams. *T. testa fusiformi, fusca, nigro-fusco variegata, epidermide pilosa obtecta; spira acuminata, anfractibus transversim liratis ac longitudinaliter plicatis, varice unico instructis; apertura ovata, labio intus valde transversim plicato, labro extus varicoso, intus dentato-plicato.*

Hab. South coast of Africa. (Mus. Cuming.)

This is an ovately fusiform species, covered with a brown pilose epidermis, with a single varix on each whorl, and with both lips of the aperture corrugately plicated, the plaits in the inside of the outer lip being almost dentiform.

6. *PISANIA FILARIS*, A. Adams. *P. testa ovato-acuminata, testacea, spira producta, superne subcylindracea, apice obtusa; anfractibus septem, convexiusculis, longitudinaliter substriatis, transversim liratis; apertura ovali, columella incurva, antice uniplicata, oblique truncata, labro extus varicoso, intus sulcato, margine acuto.*

Hab. China. (Mus. Cuming.)

A very simple and elegant species, with a subcylindrical apex, and possessing many of the characters of *Metula* and *Truncaria*.

7. *COMINELLA MAURA*, A. Adams. *C. testa ovato-fusiformi, nigro-fusca, albo lineata; anfractibus planiusculis, transversim valde sulcatis, sulcis distantibus æqualibus; apertura ovali, columella simplice, labro intus sulcato.*

Hab. Darnley's Island, *Capt. Ince.* (Mus. Cuming.)

This is a blackish-brown shell, in some specimens lined with white; the whorls are constricted just below the sutures, and the upper ones are longitudinally plicate and somewhat eroded.

8. *COMINELLA QUOYANA*, A. Adams. *C. testa fusiformi, spira acuminata, albida, rufo-fusco maculata; anfractibus octo, longitudinaliter oblique plicatis, plicis superne subnodulosis, transversim sulcatis; apertura ovali, columella antice uniplicata, labro intus lirato.*

Hab. New Zealand. (Mus. Cuming.)

This shell is possibly a variety of the *Buccinum costatum*, Quoy and Gaimard, which appears to be a very variable species; it has, however, well-marked characters of its own.

9. *PERISTERIA STIGMATARIA*, A. Adams. *P. testa ovato-fusiformi, alba, maculis nigro-fuscis ornata, transversim lirata, longitudinaliter plicata, plicis rotundis, spira acuminata, apice atro-purpurea; anfractibus convexiusculis, ad suturas maculis nigro-fuscis cinctis, ultimo maculis castaneis cincto, antice nigro-fusco tincto; apertura ovali, columella antice plicis quatuor instructa, canali brevi, labro intus lirato.*

Hab. Sandwich Islands, *Dr. Newcomb.* (Mus. Cuming.)

A handsome species, with a zone of black-brown spots at the sutures, and another series in the middle of the last whorl; the beak stained with brown-black.

10. *PERISTERIA NODULOSA*, A. Adams. *P. testa ovato-fusiformi, umbilicata, albicante, cerina, subglabra, transversim obsolete sulcata, longitudinaliter nodoso-plicata, spira pyramidalis, ad suturas serie nodulorum cincta; anfractu ultimo in medio obtuse angulato; apertura ovali, columella antice plicis obsolete instructa, labro intus valde lirato, margine antice angulato, canali brevi, recurvo.*

Hab. Australia. (Mus. Cuming.)

A peculiar whitish waxy-looking shell, with smooth nodulous whorls.

11. *LATIRUS ARMATUS*, A. Adams. *L. testa ovato-fusiformi, umbilicata, spira apertura brevior, fulva, epidermide fusca oblecta; anfractibus longitudinaliter plicatis, lira prominenti transversa (muricata ad plicas) in medio anfractu ornatis, ultimo liris minoribus instructo; apertura ovali, canali recto, aperto, columella obsolete plicata, plicis quinque, labro intus sulcato, margine crenato.*

Hab. California. (Mus. Cuming.)

This is an ovately fusiform shell, with a muricated transverse ridge in the middle of the whorls, which are covered with a brown epidermis.

12. *LATIRUS NEWCOMBII*, A. Adams. *L. testa ovato-fusiformi, spira aperturam æquante, alba, apice basique atro-purpureo tincta, serie macularum atro-purpurearum in medio anfractu, et altera serie ad suturas ornata; anfractibus longitudinaliter plicatis, transversim liratis; apertura ovali, columella plicis paucis obsoletis instructa, labro intus sulcato.*

Hab. Sandwich Islands, Dr. Newcomb. (Mus. Cuming.)

This is a very pretty little species, of a white colour, stained at the apex and base with blackish-purple, with a transverse row of blackish-purple spots in the middle of the whorls and another row at the sutures.

13. *LATIRUS FLAVIDUS*, A. Adams. *L. testa fusiformi, imperforata, pallide flava, spira aperturam æquante; anfractibus longitudinaliter plicatis, plicis distantibus, rotundatis, transversim crebre liratis, linea elevata transversa ad partem anticam et liris verrucosis transversis ornata; apertura ovato-quadrata, canali mediocri, aperto, labro intus sulcato, columella plicis paucis obsoletis instructa.*

Hab. Philippines. (Mus. Cuming.)

This is a simple yellow, somewhat smooth species, with a number of transverse verrucose liræ at the fore part of the last whorl.

14. *LATIRUS NEGLECTUS*, A. Adams. *L. testa turbinato-fusiformi, umbilicata, spira apertura longior, sordide alba, fusco tincta; anfractibus convexiusculis, longitudinaliter plicatis, plicis distantibus, crassis, rotundatis, transversim liratis, liris inæqualibus, ad plicas elevatis; apertura ovata, intus carnea, canali brevi subrecurso, columella antice obsolete plicata, labro intus sulcato.*

Hab. China. (Mus. Cuming.)

An umbilicated, turbinately-fusiform species, with the interior of the aperture pink, and with a short, somewhat recurved canal.

15. *LATIRUS DISTINCTUS*, A. Adams. *L. testa fusiformi, spira aperturam magis æquante, alba; anfractibus longitudinaliter plicatis, interstitiis atro-purpureo tinctis, liris duabus elevatis,*

nodulosus ad plicas, et linea transversa elevata ad suturas instructis; anfractu ultimo antice constricto; apertura subquadrata, columella plicis quatuor instructa, canali aperto, labro intus plicato.

Hab. — ? (Mus. Cuming.)

This is a handsome white shell, with the interstices between the longitudinal plicæ stained of a dark purple colour.

16. *LATIRUS MARQUESANUS*, A. Adams. *L. testa fusiformi, umbilicata, sordide alba, rufo tincta, apice purpureo, spira apertura longiore; anfractibus septem, longitudinaliter plicatis, transversim liratis, liris asperis; anfractu ultimo antice atro-purpureo tincto; apertura ovali, canali mediocri, columella plicata, labro margine crenato.*

Hab. Marquesas. (Mus. Cuming.)

The base of the last whorl is stained with purplish-black, as is also the apex; the shell is umbilicated, and the plicæ are rough, with minute imbricate scales.

17. *LATIRUS DESPECTUS*, A. Adams. *L. testa ovato-fusiformi, umbilicata, spira aperturam æquante, fusca, lineis albis transversis ornata, antice atro-purpureo tincta; anfractibus planiusculis, longitudinaliter plicatis, plicis distantibus, rotundatis, transversim liratis, liris subæqualibus, confertis, supremis ad suturas crenato-dentatis, suturis impressis; apertura ovata, columella plicis quatuor subobsoletis instructa, canali brevi, labro intus sulcato.*

Hab. Chinese Seas. (Mus. Cuming.)

A small fusiform fuscous species, transversely lineated with white, and stained at the fore part with blackish-violet.

18. *LATIRUS ELEGANS*, A. Adams. *L. testa fusiformi, albida, spira aperturam æquante; anfractibus convexiusculis, longitudinaliter plicatis, plicis validis, rotundis, transversim liratis, interstitiis clathratis; apertura ovali, columella triplicata, canali subproducto, labro intus sulcato.*

Hab. — ? (Mus. Cuming.)

This is an elegant fusiform species, of a white colour, with rounded plicate whorls, neatly clathrate in the interstices.

19. *LATIRUS CONTEMPTUS*, A. Adams. *L. testa ovato-fusiformi, spira aperturam æquante, pallide fusca, lineis elevatis, transversis, rufo-fuscis ornata, longitudinaliter plicata; apertura ovata, columella plicis tribus subnodulosus instructa, labro postice sinuato, margine crenulato, intus liris elevatis instructo.*

Hab. West Indies. (Mus. Cuming.)

A small brown species, ornamented with transverse red-brown lines, and with the outer lip sinuated at the hind part; the plicæ are rib-like, and rather nodulous at the transverse elevated lines.

20. *LATIRUS DECORATUS*, A. Adams. *L. testa ovato-fusiformi, alba, castaneo varie tincta, longitudinaliter plicata, transversim lirata, liris majoribus cum minoribus alternantibus, duabus ad suturas moniliformibus; apertura ovali, canali brevi, columella plicis tribus instructa, labro intus sulcato.*

Hab. New Zealand. (Mus. Cuming.)

This is a pretty little species; white, with chestnut markings, and with a double series of granules encircling the whorls at the sutures.

21. *LATIRUS STRANGEI*, A. Adams. *L. testa fusiformi, umbilicata, flavida, spira aperturam æquante, anfractibus longitudinaliter plicatis et lineis transversis, elevatis, subnodulosis cincta, suturis impressis; anfractu ultimo antice coarctato; apertura ovali, columella antice plicata, canali mediocri, labro intus lirato.*

Hab. Sydney, Mr. Strange. (Mus. Cuming.)

This species is of a pale yellow colour, ornamented with transverse red-brown lines, and with the canal moderate and turned to the left. Some varieties are straw-coloured without the lines, and tinged with blackish-violet at the fore part.

22. *EUCHELUS PROXIMUS*, A. Adams. *E. testa globoso-conica, anguste umbilicata, albida, nigro punctata, anfractibus rotundatis, suturis impressis, cingulis asperulatis, æqualibus, transversis, interstitiis clathratis ornatis; columella tuberculo parvo terminata; labro intus sulcato.*

Hab. Moluccas. (Mus. Cuming.)

In colour and markings this species somewhat resembles *E. asper*, but it is narrowly umbilicated, and there is a distinct tubercular tooth at the fore part of the columella.

23. *EUCHELUS INDICUS*, A. Adams. *E. testa globoso-conica, imperforata, grisea, cingulis transversis, inæqualibus, confertis, moniliformi ornata, anfractibus rotundis; columella ad basin tuberculo acuto instructa; labro expanso, intus valde lirato.*

Hab. Bombay. (Mus. Cuming.)

This is a solid, imperforate, grey-coloured species, of the same dimensions and style of sculpture as *E. denigratus*, Chemn., but quite distinct specifically.

24. *CLANCULUS DEPICTUS*, A. Adams. *C. testa conoidea, pseudo-umbilicata, albida, viridi fuscoque radiatim picta, cingulis subgranosis, inæqualibus ornata, anfractibus planis, ultimo ad peripheriam angulato; margine umbilici simplice; columella superne uniplicata, inferne tuberculis tribus parvis instructa; intus lirato, margine lævi.*

Hab. Bombay. (Mus. Cuming.)

A prettily variegated, conical species, somewhat resembling a *Polydonta* in appearance.

25. *CHLOROSTOMA FUNEBRALE*, A. Adams. *C. testa turbinata,*

imperforata, nigra, glabra, longitudinaliter oblique striata, ad suturas crenulata, anfractibus convexiusculis, ultimo rotundato, basi planiusculo, regione umbilicali valde impressa, callo albo oblecta; columella superne sinuata, antice bituberculata, tuberculo supremo prominente; labro nigro marginato.

Hab. California. (Mus. Cuming.)

This species is somewhat like *C. mæstum*, Jonas, but the spiral callus surrounding the umbilicus is not prominent as in that species.

26. *PHILIPPIA LAYARDI*, A. Adams. *P. testa depresso-conica, late umbilicata, fulva, albido maculata, anfractibus planiusculis, lævigatis, ad suturas cingulis duabus instructis, anfractu ultimo ad peripheriam angulato, cingulis tribus ornato, basi planiusculo, cingulis granorum (circa regione umbilicali) instructo, margine umbilici crenulato.*

Hab. Ceylon, Mr. Layard. (Mus. Cuming.)

A brownish-yellow species, with the margin keeled, and with the surface of the valves smooth.

27. *PHILIPPIA OXYTROPIS*, A. Adams. *P. testa conico-depressa, discoidea, late umbilicata, albida, luteo fuscoque variegatim picta, nucleo magno, albido, vitreo, anfractibus planiusculis, transversim lineatis, ad suturas cingulis duobus elevatis instructis; ad peripheriam acute angulata, cingulis duobus cincta, basi convexiuscula; margine umbilici crenato, corrugato.*

Hab. New Caledonia. (Mus. Cuming.)

A pretty variegated species, with a large smooth glassy nucleus, and with the periphery acutely keeled.

8. DESCRIPTIONS OF NEW SHELLS FROM THE COLLECTION OF HUGH CUMING, ESQ. BY M. G. P. DESHAYES.

1. *PSAMMOBIA MAXIMA*, Desh. *P. testa magna, ovato-transversa, compressiuscula, solida, valde inæquilaterali, utroque latere hiant, transversim inæqualiter et obsolete striata, postice subundulata, ad margines epidermide fusca vestita, albo-lutescente, roseo radiata, intus alba, vel flavido tincta; latere antico brevi, late rotundato, tantummodo attenuato; latere postico oblique rotundato, subangulato; umbonibus depressis, latis, obliquis, vix prominentibus; cardine dextro unidentato, dente compresso acuminato, sinistro sub-bidentato, dentibus angustissimis, parum prominentibus; nymphis maximis, prominentibus, latis; sinu pallii magno, profundo, latissimo.*

Hab. —? Coll. Cuming.

2. *PSAMMOBIA NIVOSA*, Desh. *P. testa ovato-transversa, solidula, compressiuscula, utroque latere hiant, inæquilaterali, transversim*

substriata, roseo-purpurascente, maculis sparsis, niveis irrorata, intus albo-rosea, superne purpurea, flavescenti-bimaculata; latere antico brevior, late rotundato, postico latiore, superne recto, non declivi, horizontali, late obtuse truncato; umbonibus minimis, depressis, latis, vix prominentibus; cardine inæqualiter bidentato, altero unidentato; sinu pallii profundo, apice latiore, truncato.

Hab. Philippine Islands (Negros). Coll. Cuming.

3. *PSAMMOBIA ORIENS*, Desh. *P. testa ovato-transversa, satis lata, nitida, solidula, inæquilaterali, transversim substriata, in latere postico inæqualiter sulcata, pallide rosea, roseo-purpurascente eleganter radiata et lineolis angulosis, irreg. aribus ornata, intus albo-rosea; latere antico brevior, superne subrecto, parum declivi, late obtuso; latere postico late et oblique truncato; nymphis magnis, latis, prominentibus; cardine bidentato, altero unidentato; dentibus angustis, valde prominentibus; sinu pallii profundo, digitiformi.*

Var. β . *Testa ad apices violacea, lineolis angulosis destituta.*

Hab. Sea of Japan. Coll. Cuming.

4. *PSAMMOBIA LATA*, Desh. *P. testa ovato-transversa, lata, depressa, solida, inæquilaterali, inæqualiter transversim striata, epidermide fuscescente, postice irregulariter semiplicata vestita, ad umbones roseo-purpurascente, ad margines albo-flavescente; lateribus æqualiter rotundatis, superne convexo-declivibus; margine inferiore convexiusculo; cardine angusto, in utraque valva bidentato, dentibus angustis, prominentibus; sinu pallii lato, profundo, apice obtusissimo; valvis intus albo pallide violascentibus.*

Hab. Central America; Saneta Elena. Coll. Cuming.

5. *PSAMMOBIA TOGATA*, Desh. *P. testa ovato-transversa, tumidula, inæquilaterali, extremitatibus sensim attenuata, attamen antice rotundata et brevior, postice oblique truncata, epidermide fusco-virente, margines superante, vestita, ad umbones decidua vel erosa; valvis intus extusque albis; cardine angusto, bidentato, altero unidentato, dentibus compressis, approximatis, acuminatis; sinu pallii magno, oblique ascendente, dilatato.*

Hab. Philippine Islands. Coll. Cuming.

6. *PSAMMOBIA TRISTIS*, Desh. *P. testa ovato-transversa, depressiuscula, solidula, subæquilaterali, transversim inæqualiter substriata, albo-grisea, obscure violaceo radiata, intus pallide violacea; latere antico paulo longiore, lateribus superne atque postice æqualiter declivibus, antico late obtuso, postico late obtuse truncato, subangulato; cardine angusto, bidentato, altero unidentato, dentibus apice bifidis; sinu pallii profundo, lato, apice obtuso, marginibus parallelis.*

Hab. Amboina. Coll. Cuming.

7. *PSAMMOBIA GRATA*, Desh. *P. testa ovato-transversa, subæquilaterali, solidula, tumidula, antice obtusa, brevior, postice*

subtruncata, transversim obsolete striata, alba, pallide violaceo multiradiata, radiis albo maculatis, lineolis longitudinalibus, irregularibus, notatis, intus alba; cardine unidentato, altero bidentato, dentibus obtusis, apice bifidis; sinu pallii lato, profundo, apice obtuso, marginibus parallelis.

Hab. Amboina. Coll. Cuming.

8. *PSAMMOBIA ZELANDICA*, Desh. *P. testa ovato-transversa, æquilaterali, breviuscula, utroque latere rotundata, compressa, transversim obsolete et irregulariter striata, alba, radiis rubro-purpureis, interruptis seu maculatis ornata, intus alba, radiis pallidioribus; sinu pallii magno, lato, profundo, elliptico.*

Hab. New Zealand.

9. *PSAMMOBIA INTERMEDIA*, Desh. *P. testa ovato-transversa, convexiuscula, solida, æquilaterali, albida, roseo grate radiata, transversim rugosa, rugis profundis, paulisper undulatis, postice crassioribus, latioribus, irregularibus; latere antico late rotundato, semi-elliptico, postico declivi, paululum attenuato, oblique extremitate truncato; cardine bidentato, altero unidentato; sinu pallii profundo, lato, ad apicem subsinuoso; valvis intus pallide violaceis.*

Hab. Coast of Portugal.

10. *PSAMMOBIA MODESTA*, Desh. *P. testa elongato-transversa, angusta, solida, convexiuscula, subæquilaterali, transversim satis regulariter striata, striis ad umbones et latus posticum evanescentibus, albida, roseo-purpurascens pauci-radiata; latere antico paulo longiore, obtuso, superne fere recto, inferne magis arcuato, postico superne recto, subangulato; cardine angusto, maculis duabus vivide violaceis notato, bidentato, altero unidentato; valvulis intus albo-violascentibus; sinu pallii profundo, superne declivi, extremitate attenuato.*

Hab. Moreton Bay. Coll. Cuming.

11. *PSAMMOBIA CANDIDULA*, Desh. *P. testa elongato-transversa, tumidula, crassiuscula, subæquilaterali, lævigata, irregulariter incremento interrupta, albido pallide flavescens; latere antico paulo longiore, superne fere recto, paulo declivi, obtuso; latere postico paulo latiore, obtuse subangulato; umbonibus minimis, prominulis; valvis intus albis; sinu pallii profundo, angusto, horizontali, marginibus parallelis.*

Hab. Philippine Islands. Coll. Cuming.

12. *PSAMMOBIA MENKEANA*, Desh. *P. testa elongato-transversa, angusta, depressiuscula, tenui, fragili, æquilaterali, albo-flavescens, vel pallide violascente, intus saturatiore violacea; latere antico late rotundato, postico obtuse truncato, obtusissime angulato; cardine solidiusculo, bidentato, altero unidentato, dentibus inæqualiter bifidis; sinu pallii profundo, subtriangulari, apice*

obtusum, superne valde declivi et convexiusculo; valvis inæqualiter extus striatis, striis ad latus posticum interruptis.

Hab. East coast of Australia. Coll. Cuming.

13. *PSAMMOBIA ANGUSTA*, Desh. *P. testa elongato-transversa, angusta, longe ellipsoidea, æquilaterali, tenui, fragili, convexiuscula, transversim obsolete et inæqualiter striata, candida, aliquando posterius flavescente, intus pallide violascente vel alba, extremitatibus æqualiter obtusis, margine superiore inferiori parallelo; cardine angustissimo, bidentato, altero unidentato, dentibus apice bifidis; sinu pallii elongato, apice angusto, attenuato, superne declivi, basi dilatato.*

Hab. Senegal. Coll. Cuming.

14. *PSAMMOBIA PUELLA*, Desh. *P. testa elongato-transversa, tenui, depressa, inæquilaterali, nitida, tenui regulariter transversim striata, striis depressis, in latere postico latioribus, rugæformibus, alba, ad umbones nitide violacea, roseo eleganter radiata, intus pallide violascente; latere antico longiore, obtuso, superne convexiusculo, rotundato; latere postico angustiore, convexiusculo, obtuse subangulato; linea impressa pallii antice margine valde remota, sinu profundo, ad extremitatem superne declivi, attenuato.*

Hab. Australia. Coll. Cuming.

15. *PSAMMOBIA ANOMALA*, Desh. *P. testa elongato-transversa, tenui, fragili, tumidula, subæquilaterali, nitida, aliquantisper hyalina, roseo-purpurascente vel violascente obsolete radiata, transversim oblique minute striata, striis ad latus posticum evanidis; latere antico paulo attenuato, obtuso, postico paulo latiore, truncato, angulo oblique decurrente distincto; valvis intus pallide roseo-violaceis; cardine angusto, bidentato, altero unidentato, dentibus lateralibus subæqualibus, prominulis, elongatis, angustis; sinu pallii lato, profundo, late obtuso.*

Hab. Philippine Islands, Zebu. Coll. Cuming.

16. *PSAMMOBIA TENUIS*, Desh. *P. testa elongato-transversa, convexiuscula, tenui, hyalina, fragili, inæquilaterali, pallide rosea, oblique tenuissime et regulariter striata, striis ad latus posticum abrupte terminatis; latere antico longiore, paulo attenuato, superne vix convexo; latere postico latiore, late truncato, superne recto; nymphis brevibus, angustis, vix prominentibus; cardine angustissimo, inæqualiter bidentato, dentibus minimis, majoribus bifidis; sinu pallii latissimo, profundo, late obtuso.*

Var. β. Testa paulo solidiore, rosea, eleganter pallide purpurascente radiata.

Hab. Philippine Islands. *Var.* Chinese Seas. Coll. Cuming.

17. *PSAMMOBIA PETALINA*, Desh. *P. testa minima, compressa, tenui, pellucida, fragili, inæquilaterali, nitida, obsolete transversim striata, pallide albo-violascente, violaceo quinqueradiata, radiis*

inæqualibus, medianis sæpius latioribus; latere antico elongato, obtuso, margine superiore recto, inferiore parallelo; latere postico brevi, angustiore, rotundato; ligamento brevi, prominente; valvis intus pallide violaceis; sinu pallii lato, profundo, horizontali, marginibus parallelis.

Hab. Chinese Seas. Coll. Cuming.

18. *PSAMMOBIA COMPTA*, Desh. *P. testa elongato-transversa, æquilaterali, compressa, tenui, fragili, lævigata substriatave, latere postico valvæ dextræ regulariter tenue plicato, plicis subimbri-catis, pallide griseo-violacea, violaceo-rufescente eleganter radiata, lineolis interruptis, confertis, irregulariter reticulata; latere an-tico semi-elliptico, obtuso, postico oblique truncato, subflexo, angulo obtuso, oblique decurrente partito; cardine angustissimo; nymphis callosis, prominentibus, intus vivide purpureo-violaceis; sinu pallii profundo, lato, horizontali, ad apicem superne declivi; valvis intus pallide purpureo-violaceis, radiis saturationibus eleganter pictis.*

Hab. Van Diemen's Land.

19. *PSAMMOBIA OBLONGA*, Desh. *P. testa ovato-transversa, depressa, tenui, æquilaterali, extremitatibus æqualiter obtusa, ob-solete striata, nitida, albo-violascente, minute violaceo radiata, ad umbones atro-violacea, lineis tenuissimis, irregularibus, inter-ruptis, longitudinalibus quasi fissurata; latere postico oblique et obtusissime angulato, supra angulum valvulæ dextræ striis undu-lato-imbricatis notato; valvulis intus vivide violaceis; sinu pallii profundo, lato, superne ad extremitatem declivi, attenuato.*

Hab. —?

20. *PSAMMOBIA STRIATA*, Desh. *P. testa ovato-transversa, de-pressa, solidula, inæquilaterali, transversim tenue et regulariter striata, striis ad latus posticum in zonula obliqua minus numerosis, inter se confluentibus, in latere postico tenuibus et regularibus; latere antico longiore, obtuso, superne paululum declivi et con-convexusculo, postico obtuso, subangulato, oblique subtruncato; car-dine angusto, bidentato, altero unidentato, dente antico valvulæ dextræ apice fisso et dilatato; nymphis brevibus, angustis; sinu pallii lato, profundo, late obtuso; valvis albo-griseis, aliquantisper violaceo-rufescente radiatis, intus pallide violaceo-purpureis.*

Hab. Van Diemen's Land.

21. *PSAMMOBIA TRIPARTITA*, Desh. *P. testa elongato-transversa, anguste ellipsoidea, compressa, æquilaterali, violacea, maculis minimis, albis, confluentibus, irregulariter sparsis notata, seu obscure albido radiata, transversim striata, striis antice latis et planis, in medio bipartitis, duplo numerosioribus, in latere postico subito lamellosis, imbricatis, acutis; latere antico semi-elliptico, superne inferneque fere æqualiter convexusculo, obtuso; latere postico paulo latiore, oblique truncato, angulo acutiusculo inferne terminato, angulo obtuso, obsoleto ab umbone decurrente; liga-*

mento magno, cylindraceo, prominente; valvis intus violaceis; sinu pallii profundo, lato, subtriangulari, inferne obliquo.

Var. β . Testa minore, angustiore, violaceo-rubescente.

Hab. Philippines. Coll. Cuming.

22. PSAMMOBIA INSIGNIS, Desh. *P. testa magna, elongato-transversa, compressa, subæquilaterali, solidiuscula, violaceo-rubescente, rubro-purpurascente pauci-radiata, radiis maculis irregularibus, interruptis formatis, transversim tenue sulcato-striata, striis ad apices tenuibus, ad margines crassioribus et profundioribus; latere antico semi-elliptico, obtuso, superne inferneque æqualiter convexiusculo; latere postico superne recto, paululum declivi, angulo carinato distincto, supra angulum latere postico carina altera seriatim granulosa bipartito; striis in latere postico sublamellosis, in carinis prominentioribus, margine postico oblique truncato, inferne acute angulato; valvis intus vivide violaceis.*

Hab. —? Coll. Cuming.

23. PSAMMOBIA BICARINATA, Desh. *P. testa transversa, elongata, angusta, depressa, solidula, æquilaterali, atro-violacea vel purpureo-violascente, violaceo saturatiore obsolete radiata, transversim sulcata, sulcis aliquantisper ad marginem inferiorem obliquis; latere antico semi-elliptico, postico oblique recteque truncato, vivide angulato, carinis duabus acutis, divergentibus separato, area profunda, angusta, angulo arcuato distincta, lunula elongata, angustissima; latere postico valvulæ dextræ eleganter clathrato; dentibus lateralibus remotis, obsolete, attamen perspicuis; valvis intus violaceis vel purpureis.*

Hab. Madagascar, Zanzibar.

24. PSAMMOBIA ELEGANS, Desh. *P. testa elongato-transversa, angusta, compressa, æquilaterali, transversim rugoso-plicata, rugis convexis, approximatis, depressis, sæpius paulo undulatis; latere antico obtuso, semi-elliptico, postico oblique truncato, carinis duabus acutis, crenulatis notato, supra carinam in valva dextra eleganter clathrato, in sinistra simpliciter plicato, margine superiore postico recto, ad umbones concaviusculo; cardine angusto, bidentato, altero unidentato, dentibus minimis, majoribus bifidis; sinu pallii lato, profundo, horizontali, acuminato, superne declivi; valvis tenuibus, albis, eleganter intus extusque violaceo radiatis.*

Hab. —?

25. PSAMMOBIA PRÆSTANS, Desh. *P. testa elongato-transversa, convexiuscula, tenui, inæquilaterali, transversim et oblique minute et regulariter striata, ad latus posticum striis subito interruptis; latere antico brevior, superne convexiusculo, obtuso; latere postico latiore, angulo obtuso oblique decurrente separato, striis radiantibus, parum elevatis ornato, prope umbones tenuissime decusato; sinu pallii profundo, lato, apice late obtuso; colore variabilis.*

Var. β . Testa atro-violacea, maculis nivosis irregulariter sparsis, intus violaceo-alba.

Var. γ . Testa roseo-purpurascente, fusco eleganter pauci-radiata, maculis albis nubeculata, intus albo-purpurascente.

Hab. Moluccas. Coll. Cuming.

26. PSAMMOBIA LAYARDI, Desh. *P. testa elongato-transversa, depressa, æquilaterali, transversim oblique et minute striata, striis ad latus posticum valvæ sinistræ abrupte terminatis, in valva dextra continuis, et supra angulum obtusum lineis tenuibus longitudinalibus decussatis; latere antico semi-elliptico, superne convexiusculo; latere postico angulo subcarinato distincto, superne recto, non declivi, paulo angustiore, extremitate obtuso; valvis solidiusculis, extus pallide roseo-violaceis, albo irregulariter maculatis et fusco subradiatis, intus albo-purpurascentibus, nymphis obscure violaceo tinctis.*

Hab. Philippines.

27. PSAMMOBIA ORNATA, Desh. *P. testa ovato-transversa, subventricosa, solida, inæquilaterali, elliptica, albo pallide violascente, violaceo pallido marmorata, albo maculata, et rubro-castaneo interruptim radiata, ad umbones rufa, intus albo-violacea, in medio macula rufa notata; latere antico paulo longiore, late obtuso, postico æqualiter lato, obtuso, transversim et oblique tenue striato, striis in valva sinistra ad latus posticum, lævigatum interruptis, in valva dextra cum rugis posticalibus undulatis continuis; nymphis brevibus, violaceis; sinu pallii magno, profundo, late obtuso.*

Var. β . Testa depressiore, pallidiore, striis rugisque crassioribus.

Hab. Philippines, Ticao. Coll. Cuming.

28. PSAMMOBIA AMENA, Desh. *P. testa elongato-transversa, angusta, depressa, tenui, pellucida, æquilaterali, transversim regulariter striata, striis antice latioribus, in medio furcatis, postice in valva dextra evanescentibus, subobsoletis, in valva sinistra continuis, striis octo radiantibus decussatis, alba, pallidissime violascente, violaceo pallido tenue maculata et obsolete radiata; latere antico superne fere recto, paululum declivi, sensim attenuato, postico paulo latiore, oblique truncato, superne recto, vix declivi, angulo obtusissimo ab umbonibus decurrente distincto, margine inferiore fere recto; ligamento prominente, cylindraceo; valvis intus albis, nymphis violaceis.*

Hab. —? Coll. Cuming.

29. PSAMMOBIA PALLIDA, Desh. *P. testa transversa, compressiuscula, tenui, hyalina, subæquilaterali, pallide sulphurea vel violascente, obscure violaceo pallido radiata, latere antico paulo brevior, attenuato, superne paulo declivi, postico latiore, subflexuoso, oblique truncato, lævigato; cardine angusto; nymphis elongatis, angustis, violaceo-roseis; sinu pallii subtrigono, horizontali, apice acuminato, superne declivi; valvis oblique eleganter striatis, striis*

confertis, transversalibus, decussantibus, ad latus posticum interruptis, lineolis irregularibus, longitudinalibus, undulatis, interruptis reticulatis.

Hab. Red Sea.

30. *PSAMMOBIA RUBICUNDA*, Desh. *P. testa pulcherrima, ovato-transversa, tenui, utroque latere paululum hiante, subæquilaterali, tenue et regulariter oblique striata, striis confertis, acutiusculis, ad latus posticum valvulæ sinistrae abrupte interruptis, latere postico late plicato, in valva dextra striis cum posticalibus continuis, non interruptis, vivide purpureo-rubente, maculis minimis, albis, irregulariter sparsis, radiisque angustis, violascentibus in latere postico divergentibus; latere antico brevior, obtuso, postico paulo latiore, oblique truncato et obtuso; cardine angusto, nymphis brevibus, intus callosis, callo vivide purpureo; valvis tenuibus, intus purpureis, albo nubeculatis.*

Var. β. Testa magis rubra, maculis albis, majoribus, minus numerosis.

Hab. Philippines, Ticao. Coll. Cuming.

31. *PSAMMOBIA CORRUGATA*, Desh. *P. testa ovato-transversa, convexiuscula, inæquilaterali, rubro-violascente, albo irregulariter maculata et rubro-violaceo saturatiore subradiata, transversim oblique dense striata, in latere postico late et irregulariter rugosa, rugis cum striis continuis; latere antico brevior, late rotundato, postico parum dilatato, superne recto; cardine bidentato, altero unidentato, nymphis violaceis; sinu pallii profundo, obtuse trigono, superne declivi, basi dilatato.*

Var. β. Testa omnino candida.

Hab. Philippines, Zebu. Coll. Cuming.

32. *PSAMMOBIA MARMOREA*, Desh. *P. testa ovato-transversa, compressiuscula, solidula, subæquilaterali, transversim regulariter et oblique striata, striis acutiusculis, ad latus posticum interruptis, sub epidermide tenui, albo-violascente, rubro-purpurascente fusco et albo marmorata, maculis albis, minimis, sæpius transversis, maculis rubro-purpureis, elongatis, radiis interruptis simulantibus; latere antico brevior, paulo angustior, obtuso, postico subtruncato, obsolete oblique biflexo, plicis latis, depressis, subimbricatis notato; cardine angusto, nymphis intus callosis, roseo-purpureis; sinu pallii lato, profundo, obtuso.*

Var. β. Testa latior, pallidior, inæqualiter radiata.

Hab. Darnley Island.

Var. β. New Holland (Sydney); Moluccas.

33. *PSAMMOBIA ABRUPTA*, Desh. *P. testa elongato-angusta, transversa, tenui, pellucida, æquilaterali, compressa, lutea, obsolete rubescente pauci-maculata, transversim regulariter costulata, costulis obtusis, vix obliquis, postice abrupte interruptis; latere postico compresso, costulis radiantibus, simplicibus, latis*

ornato, superne recto, ad extremitatem rotundatim truncato, margine inferiore fere recto.

Hab. Philippines. Coll. Cuming.

34. *PSAMMOBIA PULCHERRIMA*, Desh. *P. testa minima, elongato-angusta, transversa, subæquilaterali, compressa, tenui, fragili, roseo-violascente, obsolete albo radiata, intus pallide purpurascente, oblique transversim costata, costis simplicibus, depressis, superne acutiusculis, ad latus posticum subito interruptis; latere postico costulis radiantibus, squamoso-scabris ornato, marginibus parumper hiantibus, denticulatis; latere antico paulo longiore, superne recto, parum declivi, postico latiore truncato; sinu pallii lato, profundo, tenui, ovali.*

Hab. — ? Coll. Cuming.

35. *PSAMMOBIA PENNATA*, Desh. *P. testa ovato-transversa, compressiuscula, subæquilaterali, satis lata, albo-grisea, albo et rufo-rubescente irregulariter minute maculata, latere antico late rotundato, striis tenuissimis, perobliquis, regularibus abrupte terminatis, ornato; latere postico depressiusculo, angulo obtuso bipartito, striis distantioribus, in angulo regulariter divaricatis notato, parte superiore striarum ad marginem superiorem ascendentibus, parte altera ad marginem inferiorem incumbentibus, cum prioribus angulum acutum formantibus; cardine bidentato, altero unidentato.*

Hab. — ? Coll. Cuming.

36. *PSAMMOBIA DISPAR*, Desh. *P. testa ovato-transversa, depressa, tenui, fragili, inæquilaterali, pallide lutea, aliquantisper rufo irregulariter marmorata; latere antico longiore, lato, inferne convexo, striis tenuissimis, confertissimis, perobliquis ornato, ad latus posticum striis aliquibus acutissime angulosis, interruptis; latere postico brevi, attenuato, superne recto, parum declivi, costis decem divergentibus, crassis, latis, fere horizontalibus ornato, angulum acutum cum striis posticalibus primis formantibus; cardine bidentato, altero unidentato, nymphis minimis, violaceis.*

Hab. Philippines. Coll. Cuming.

37. *PSAMMOBIA PALMULA*, Desh. *P. testa elongato-transversa, angusta, depressa, arcuata, inæquilaterali, tenui, fragili, oblique costulata, costulis antice minimis, postice latioribus, continuis, prominentibus, rotundatis, radiantibus, albo-lutescente, maculis minimis aliquibus rubris, sparsis; latere antico brevior, superne recto, antice obtuso, inferne arcuato; latere postico attenuato, oblique truncato, margine postico hiant, plicato, subdenticulato; nymphis intus violaceo maculatis; sinu pallii lato, apice late obtuso.*

Var. β . *Testa angustiore, costulis postice interruptis, postica-*

libus subsquamosis; striis lirisve longitudinalibus in latere antico divergentibus.

Hab. New Holland, Sydney.

38. *SANGUINOLARIA VITREA*, Desh. *S. testa ovato-transversa, convexiuscula, inæquilaterali, tenui, candida, vitrea, nitida, tenuissime et irregulariter striata; latere antico brevior, regulariter semicirculari; latere postico superne recto, vix declivi, extremitate angustato, margine inferiore valde convexo, late semicirculari; cardine angusto, in utraque valva inæqualiter bidentato, dentibus majoribus apice bifidis; sinu pallii superne valde producto, acute angulato, oblique descendente, et triangulum æquilateralem formante.*

Hab. — ? Coll. Cuming.

39. *GASTROCHÆNA PUPINA*, Desh. *G. vagina crassa, brevi, clavata, transversim articulata, lævigata, nulla corpora aliena agglutinante, in cavitate valvulæ affixa. Testa minima, tenui, alba, hyalina, hiantissima, hiato amplissimo quasi testæ per mediam partem resecto, oblique inæqualiter bipartita, coarctata, extremitate postica clausa, obtusa, attenuata; latere antico satis longo, incumbente, cucullato; umbonibus prominulis, oblique terminalibus; valvis lævigatis, postice sutura brevi, carinata; margine aperturæ dorsali, parallelo.*

Hab. Moreton Bay. Coll. Cuming.

40. *GASTROCHÆNA APERTISSIMA*, Desh. *G. testa elongata, cuneiformi, inflata, tenui, fragili, per totam altitudinem testæ antice inferneque hiantissima, alba, tenui, pellucida, antice brevissima, margine inferiore fere recto, posteriore obtuso, convexo, superiore paulo obliquo; valvis tenuissime striatis, striis in latere antico transversalibus, in medio secundum lineam obliquam fractis, in area superiore armatis, pluribus majoribus, subæquidistantibus; ligamento angusto, elongato, nigrescente.*

Hab. Philippines. Coll. Cuming.

41. *GASTROCHÆNA MACROSCHISMA*, Desh. *G. testa ovata, brevi, ventricosa, tenui, fragili, candida, antice hiantissima, hiato subcordiformi, lato, obliquo, et fere totam altitudinem testæ æquante; valvis trapezoidalibus, tenuissime striatis, striis in latere antico tenuissimis, appressis, in medio distantioribus, erectis, sublamellosis; latere postico obtuso, superne in sutura cristato; umbonibus tumidis, postice depressiusculis; latere antico brevi, recto; sinu pallii parum profundo, apice acuto, triangulari, subæquilaterali.*

Hab. — ? Coll. Cuming.

42. *GASTROCHÆNA LÆVIGATA*, Desh. *G. testa ovato-cuneiformi, tenui, pellucida, fragili, candidissima, ventricosa, late hiant, hiato cordiformi, dimidiam partem testæ paulo superante; valvis lævigatis; latere antico striis aliquibus regularibus, ad mediam*

partem arcuatæ ei cranescentibus; umbonibus minimis, obliquis, approximatis; latere antico brevissimo, recto.
Hab. — ? Coll. Cuming.

43. *GASTROCHÆNA TENERA*, Desh. *G. testa elongato-angusta, tenui, pellucida, compressiuscula, antice angusta, postice paulo latiore, subdilatata, antice apertissima, hiatu totam altitudinem æquante, lateraliter paulo sinuoso; valvis antice inæqualiter tenue striatis, in medio distanter arcuato-subplicatis; umbonibus tumidulis, subterminalibus; latere antico brevi, subhorizontali, in sutura cristato, et emarginato; sinu pallii magno, profundo, triangulari, apice acutissimo, basi lato.*
Hab. Philippines. Coll. Cuming.

44. *GASTROCHÆNA HUMILIS*, Desh. *G. testa parva, elongato-ovata, tumida, tenui, alba, hyalina, fragili, apertura antica ovato-acuminata, dimidiam partem testæ vix æquante, oblique secta et rectilinea; valvis subtrapezoidalibus, regulariter striato-sublamellosis, striis continuis, antice approximatis, in medio paulo distantioribus et prominentioribus; umbonibus tumidulis, approximatis; latere antico brevissimo, in sutura cristato, parum obliquo; ligamento angusto, elongato, nigro.*
Hab. Philippines, Zebu (Cuming). West Indies (Mus. Brit.).

45. *GASTROCHÆNA INTERSECTA*, Desh. *G. testa ovato-oblonga, brevi, cuneiformi, tenui, fragili, candida, oblique hiante, hiatu ovato, acuminato, dimidiam partem testæ æquante, valvis subspatulatis, antice angustis, postice dilatatis, striatis, striis anticis regularibus, extremitate detectis, æquidistantibus, arcuatis et in medio evanescentibus et medianis interpositis, striis medianis inæqualibus, majoribus distantibus; latere antico brevissimo, fere nullo; umbonibus minimis, subterminalibus.*
Hab. — ? Coll. Cuming.

46. *GASTROCHÆNA IMPRESSA*, Desh. *G. testa elongato-cuneiformi, subovata, inflata, antice inferneque amplissime aperta; hiatu totam longitudinem testæ æquante, margine lateraliter oblique arcuato, antice angusto; valvis tenuibus, subtrapezoidalibus, in medio sulco vix impresso bipartitis, parte antica tenue transversim striata, striis in sulco subfractis, parte postica arcuatim et irregulariter sulcato-striata, in latere postico striis oblique ascendentibus; umbonibus tumidulis, postice obtuse subangulatis, fere terminalibus; ligamento angustissime elongato, partim immerso.*
Hab. — ? Coll. Cuming.

47. *GASTROCHÆNA DENTICULATA*, Desh. *G. testa ovato-ventricosa, brevi, solidula, lata, hiantissima, hiatu ovato, lato, inferne attenuato et tertiam partem posticam testæ attingente; valvis subtrapezoidalibus, transversim striato-lamellosis, in latere antico striis imbricatis, crispato-denticulatis, in latere postico*

erectis, distantioribus; latere antico satis elongato, recto, in sutura cristato; umbonibus tumidulis, subumbilicatis; ligamento angusto, elongato, fulvo.

Hab. Columbia. Coll. Cuming.

48. *GASTROCHÆNA DIFFICILIS*, Desh. *G. testa elongato-transversa, ovata, cuneiformi, compressiuscula, oblique longe hiante, hiatu ovato-oblongo, inferne attenuato, fere totam longitudinem testæ æquante; valvis trapezoidalibus, tenue striatis; striis tenuissimis, erectis, angustissimis, in latere antico confertioribus; umbonibus minimis; latere antico brevissimo, recto; ligamento elongato, rufo, angusto.*

Hab. Western India. Coll. Cuming.

49. *GASTROCHÆNA LAMELLOSA*, Desh. *G. testa elongato-angusta, tenui, fragili, candida, hyalina, compressiuscula, longe hiante, margine antice paululum excavato, in medio convexo, hiatu longissimo, inferne valde attenuato, fere totam altitudinem testæ æquante; valvis antice valde attenuatis, rostratis, postice obtusis, rotundatis, antice tenuissime striatis, striis erectis, appressis, in medio distantioribus, breviter lamellosis, eleganter armatis, regularibus; umbonibus minimis, approximatis, subumbilicatis; latere antico brevissimo, subrostrato; ligamento angustissimo, nigro.*

Hab. Philippines, Zebu. Coll. Cuming.

50. *GASTROCHÆNA PHILIPPINENSIS*, Desh. *G. testa elongato-angusta, subovata, compressiuscula, tenui, alba, antice inferneque oblique hiante, hiatu ovato, inferne acuminato, dimidiam partem testæ paulo superante; valvis tenue striato-lamellosis, striis arcuatis secundum peripheriam valvarum antice tenuibus, approximatis, in medio latioribus, sublamellosis; margine superiore postico paulo carinato; umbonibus minimis; latere antico brevi, recto, subrostrato.*

Hab. Philippines, Zebu. Coll. Cuming.

51. *GASTROCHÆNA INDISTINCTA*, Desh. *G. testa ovato-elongata, angusta, cuneiformi, tenui, alba, oblique truncata, elongato-hiante, hiatu elongato, acuminato, angustiusculo, usque ad tertiam partem posticam testæ attingente, transversim striata, striis antice tenuibus, regularibus, sublamellosis, erectis, in medio paulo distantioribus, et minus regularibus, in area postica tenuissimis; area postica elongato-angusta, angulo obtuso distincta; latere antico brevissimo; ligamento angustissimo, partim infosso, breviusculo.*

Hab. Singapore. Coll. Cuming.

52. *GASTROCHÆNA RUPPELLII*, Desh. *G. testa elongato-ovata, solidula, turgidula, candida, antice oblique hiante; hiatu ovato, lato, inferne attenuato, fere totam altitudinem testæ æquante; valvis dense striatis, striis obtusis, antice satis regularibus,*

appressis, in medio et latere postico distantioribus, irregularibus, obtusis; umbonibus tumidulis; latere antico brevi, recto, antice parum inflexo; ligamento prælongo, angusto.

Hab. Red Sea (Ruppell). Coll. Cuming.

53. *GASTROCHÆNA INTERRUPTA*, Desh. *G. testa elongato-angusta, convexiuscula, extremitatibus fere æqualiter lata, per longitudinem quasi excisa, late aperta; hiatu longissimo, ovato, oblongo, inferne vix acuto, et fere totam longitudinem testæ æquante; valvis oculo nudo lævigatis, sub lente argutissime striatis, striis obsoletis, distantibus, incrementi distantibus, subcontabulatis, interruptis; margine inferiore recto, superiore fere parallelo; umbonibus minimis, subterminalibus; latere antico brevi, inclinato; ligamento angustissimo, brevi.*

Hab. Philippines. Coll. Cuming.

54. *GASTROCHÆNA SPATHULATA*, Desh. *G. testa elongato-angusta, cuneiformi, compressiuscula, tenui, fragili, alba, antice longe hiante, hiatu fere totam longitudinem testæ æquante, inferne sensim attenuata; valvis antice angustis, postice latioribus, spathulatis, irregulariter striatis, striis lateris antici tenuioribus, magis regularibus, rectis, in medio rugulosis, arcuatis, inæqualibus; umbonibus minimis, acutis, fere terminalibus; latere antico brevissimo; ligamento elongato, angusto, fuscescente; sinu pallii angustissimo, acuto, profundissimo, usque umbones versus ascendente.*

Hab. Philippines, Bohol. Coll. Cuming.

55. *GASTROCHÆNA CUCULLATA*, Desh. *G. testa elongato-cuneiformi, tenui, alba, fragili, subcretacea, extremitate antica brevissima, postica compressa, dilatata, spathuliformi, antice inferneque oblique hiante, apertura lateraliter coarctata, fere totam longitudinem testæ æquante, latere antico angusto, incumbente, cucullato; valvis extus in tres areas divisas, prima antica obsolete striata, mediana latiore, irregulariter arcuatim striato-rugosa, tertia circa ligamentum angustiore, lævigata; umbonibus tumidulis, terminalibus; ligamento satis prominulo, elongato, fusco.*

Hab. West Indies. Coll. Cuming.

56. *GASTROCHÆNA PLICATILIS*, Desh. *G. testa elongato-ovata, tenui, fragili, pellucida, compressiuscula, longe hiante, postice truncata, hiatu maximo, elongato, totam altitudinem testæ æquante, inferne sensim attenuata; valvis in tres areas divisas, una antica lata, transversim regulariter striata, striis tenuissimis, oblique sub lente striolatis, parte secunda oblique mediana, angusta, lævigata, postica pyramidata, prominentiore, sulcis depressiusculis circumdata, transversim profunde sulcata, quasi scalariformi; area circa ligamentum planulata, elongato-lanceolata, ligamento crasso, elongato.*

Hab. Philippines, Zebu.

57. *CHENA AGGLUTINANS*, Desh. *C. vagina minima, elongato-clavata, postice valde attenuata, cortice valde et irregulariter transversim plicato, corpora aliena agglutinante. Testa elongato-angustissima, tenui, fragili, hiantissima, ad latus posticum vix paulo latiore, extus ut in Solenibus bipartita, parte altera subplana, arcuatim striata, altera longitudinaliter tenuissime striata; latere antico brevissimo, abrupte truncato, cucullato, angulo acuto circumscripto, radiatim tenue lirato, liris subgranosis; impressione musculari postica paulo post mediana, minima; sinu pallii profundo, acutissimo.*

Hab. Philippines, Zebu. Coll. Cuming.

58. *CHENA GRANDIS*, Desh. *C. vagina elongato-clavata, regulari, recta, transversim rugata, postice attenuata, sabuletis in cortice agglutinante. Testa elongato-angusta, hiantissima, postice latiore, spathulata, ad latus anticum sensim attenuata; latere antico brevissimo, subito truncato et angulo acuto distincto, in medio valde carinato vel cristato, radiatim inaequaliter sulcato, sulcis inaequalibus novem ad decem, quinque majoribus denticulo acuto terminatis; cardine lineari, simplice; impressione musculari postica in medio longitudinis posita; sinu pallii profundo, acutissimo.*

Hab. Philippines, Zebu. Coll. Cuming.

59. *CARDIUM SERRULATUM*. *C. testa suborbiculari, postice subangulata, æquilaterali, convexiuscula, tenui, fragili, alba, rufo irregulariter maculata, umbonibus acutis, oppositis, minimis, lævigatis, violaceis, longitudinaliter tenue costata, costis quinque et quinquaginta, oblique denticulis brevibus, acutis, lateraliter serrulatis, in latere postico denticulis longioribus, marginibus tenue crenulatis; valvis intus albis, sub apice purpureo maculatis.*

Hab. Guinea. Coll. Cuming.

60. *CARDIUM GOSSEI*, Desh. *C. testa orbiculari, turgida, sphæroidea, æquilaterali, crocea, ad apices alba, longitudinaliter costellata, costis angustis, rotundatis, anticis unico ordine tuberculorum muricatis, medianis lævibus, postremis depressis, muricato-duplicatis; umbonibus prominentibus, oppositis; valvis intus albis, aliquantisper vivide in medio croceis; marginibus lunulæ supernæ reflexis.*

Hab. West Indies. Coll. Cuming.

61. *CARDIUM BICOLOR*, Desh. *C. testa ovato-transversa, ventricosa, cordiformi, subæquilaterali, alba, latere postico subito castaneo nitente picto, latere antico dilute fusciscente, longitudinaliter costata, costis sex et viginti, planulatis, posticis lævigatis, latoribus, anticis crenulatis, sequentibus liris obliquis, rugosiusculis; umbonibus obliquis, prominentibus, acutis.*

Hab. — ? Coll. Cuming.

62. *CARDIUM HUDSONIENSE*, Desh. *C. testa parva, rotundato-subtrigona, oblique inæquilaterali, compressiuscula, tenui, fragili, squalide grisea, longitudinaliter costata, costis septem et viginti, anticis transversim crenatis, medianis planis, fere obsoletis, posterioribus acutioribus, muricatis; umbonibus minimis, parum obliquis; latere antico obtuso, rotundato, postico obtuse oblique subtruncato.*

Hab. Hudson's Bay. Coll. Cuming.

63. *CARDIUM CYGNORUM*, Desh. *C. testa longitudinaliter ovata, depressiuscula, parum obliqua, subæquilaterali, albida, ad margines lutea, ochraceo pallido irregulariter maculata, longitudinaliter costata, costis quadraginta duo, convexis, approximatis, anterioribus crenulatis, medianis utroque latere impresso-crenatis, posterioribus minoribus, planulatis, crenato-duplicatis; umbonibus acutis, oppositis; lunula lanceolata, rubescente, impressa; valvis intus albis; costis circa ligamentum luteis, serratis, interstitiis rosaceis.*

Hab. Swan River. Coll. Cuming.

64. *CARDIUM TUMIDUM*, Desh. *C. testa longitudinaliter ovata, parum obliqua et inæquilaterali, turgida, cordiformi, crassa, solida, sub epidermide squalide fusca alba, intus dilute lutea, ad margines alba, longitudinaliter costata, costis ad triginta, crassis, anticis depressioribus, regulariter liris arcuatis, crenulatis, medianis crassioribus, subangulatis, lateraliter oblique striatis, posticalibus obsoletis, planis, lineis impressis notatis; umbonibus magnis, prominentibus, oppositis, lunula magna, ovato-lanceolata, lævigata, excavata.*

Hab. Moluccas. Coll. Cuming.

65. *CARDIUM GRATIOSUM*, Desh. *C. testa longitudinaliter ovata, tumida, cordiformi, crassa, solida, subæquilaterali, parum obliqua, purpurascente, fasciis irregularibus, transversis, saturatioribus ornata; latere postico albo, longitudinaliter costato, costis convexis, ad apices subangulatis, depressiusculis, anticis medianisque transversim crenatis, vel subplicatis, posterioribus depressis, planis, linea impressa separatis; umbonibus acutis, brevibus, oppositis; lunula elongata, lanceolata, lævigata, concava, purpurea.*

Var. β. Testa omnino simili sed luteo colore picta.

Hab. Moluccas. Coll. Cuming.

66. *CARDIUM MAURITIANUM*, Desh. *C. testa longitudinaliter ovata, æquilaterali, non obliqua, convexa, cordiformi, alba vel flavesciente, roseo-purpurascente gratissime et irregulariter maculata, intus alba, obsolete purpureo maculata, marginibus vivide purpureo maculatis, longitudinaliter costata, costis quatuor et quadraginta, convexis, depressiusculis, approximatis, primis anterioribus tuberculatis, sequentibus crenulatis, medianis utroque latere punctato-crenatis, posterioribus subimbricatis, spinulis brevibus obliquis arcuatis.*

Hab. Mauritius. Coll. Cuming.

67. **CARDIUM FESTIVUM.** *C. testa rotundato-trigonoide, turgidula, crassa, æquilaterali, alba, nitida, eleganter sparsim lineata et maculata, roseo-purpurascente antice posticeque maculis majoribus alternatim picta, longitudinaliter costulata, costulis obtusis, fere planis, simplicibus; latere antico declivi, obtuso, inferiore parum convexo, postico declivi, subtruncato; umbonibus parvis, oppositis; epidermide peculiari vestita, cornea, transversim tenuissime et eleganter striata, striis arcuatis; valvis intus vivide aurantio-purpureis.*

Hab. New Ireland. Coll. Cuming.

68. **CARDIUM LOBULATUM,** Desh. *C. testa longitudinaliter oblique ovata, depressiuscula, grisea, pallide rufo irregulariter lineata et maculata, nitide lævigata; latere postico obsolete sulcato, sulco ultimo profundiore et latiore, lobulo distincto; umbonibus parvis, violascentibus; valvis tenuibus, intus rubro-purpureis; marginibus tenuissime crenulatis.*

Hab. Philippines. Coll. Cuming.

69. **CARDIUM MIRABILE,** Desh. *C. testa orbiculari, tumido-sphæroidali, æquilaterali, vix oblique cordiformi, albo-rufescente, ad margines incarnata, longitudinaliter costata, costis sex et viginti, crassis, rotundatis, lateraliter convexis, et interstitiis profundis partim obtegentibus; costis anticis spinis erectis, longiusculis asperatis; in costis medianis spinis in latere postico oblique ordinatis, in posticalibus spinis inter se confluentibus et laminam serratam formantibus; lunula magna, plana, alba, ovata; area convexiuscula, elongata, inferne roseo tincta; latere postico ringente, modice hiante.*

Hab. Philippines. Coll. Cuming.

70. **CARDIUM ÆQUALE,** Desh. *C. testa cordiformi, lateraliter compressa, carina acuta, inferne simplice, obtusa, superne acuta, brevi, denticulata, æqualiter bipartita, albo-lutescente, postica pallide aurantia, intus eodem colore tincta, longitudinaliter costata, costis in latere antico æqualibus, parum prominentibus, superne obsolete tuberculosis, in latere postico inæqualibus; umbonibus valde carinatis, revolutis, oppositis; lunula ovata, lævigata; area ligamenti subcordata, elongata, effossa.*

Hab. — ?

71. **CARDIUM DEBILE,** Desh. *C. testa ovato-transversa, compressa, fragili, sublenticulari, inæquilaterali, longitudinaliter tenuissime costata, costis tribus et quadraginta, albicante, pallide aurantio irregulariter maculata; latere antico semicirculari, postico paulo longiore et latiore, costis anticis et medianis tenuissimis, planulatis, posticalibus duabus latissimis, planis, alteris elatioribus, squamoso-spinosis; costis anticis tenue crenulatis, medianis lævigatis; marginibus antice posticeque hiantibus.*

Hab. Chinese Seas. Coll. Cuming.

72. **CARDIUM TRANSVERSALE**, Desh. *C. testa minima, ovato transversa, valde inæquilaterali, convexiuscula, longitudinaliter costata, costis 23, antice et in medio angustis, planiusculis, simplicibus, argutissime transversim striatis, posticis multo majoribus, convexis, ultimis superioribus tribus squamulis erectis armatis; latere antico albo, postico castaneo, costis albo-subarticulatis; colore intus repetito.*

Hab. Alboran.

73. **CARDIUM FABRICII**, Desh. *C. testa ovato-transversa, oblique cordiformi, turgida, tenui, lævigata, antice posticeque obsolete impresso-sulcata, squalide grisea, ochraceo maculata; latere antico brevi, lato, semicirculari, postico superne declivi; umbonibus prominentibus, obtusis, oppositis; valvis tenuibus, intus albis, squalide lutescentibus; cardine angusto, dentibus cardinalibus laterali-busque validioribus quam in Cardio Grœnlandico.*

Cardium Grœnlandicum var., Middendorff, *Malac. Rossic. part 3.*

p. 41. *pl.* 16. *f.* 6, 7.

Hab. Greenland.

74. **CARDIUM PRODUCTUM**, Desh. *C. testa lateraliter cordiformi, oblonga, latere postico plano, concaviusculo, in medio prominente; latere antico conoideo, producto, infra lunulam altiore, albo-lutescente, maculis albis, præcipue in latere postico eburneis, satis regulariter marmorata; carina marginali acuta, denticulis brevibus, regularibus armata; costis longitudinalibus decem in latere antico, superne granulis acutiusculis armatis, undecim in latere postico inæqualibus, quorum duo tresve superioribus squamosis; umbonibus acute carinatis, oppositis, revolutis.*

Hab. Torres Straits. Coll. Cuming.

75. **CARDIUM SCRUPOSUM**, Desh. *C. testa parva, subquadrangulari, subæquilaterali, turgida, cordiformi, candidissima, angulo acuto, oblique inæqualiter bipartita; latere antico longiore, rotundato, margine inferiore subrecto, posteriore alto, rectilineari, cum inferiore angulum subrectum formante, margine superiore postico recto; longitudinaliter costata, costis crassis, nodosis, quatuor et viginti, quorum quindecim in latere postico, nodulis per ordines transversales digestis; costulis posterioribus paululum minoribus.*

Hab. Malacca. Coll. Cuming.

76. **CÆCELLA TURGIDA**, Desh. *C. testa ovato-transversa, subæquilaterali, turgida, inflata, tenuissime obsolete striata, epidermide pallide flavescente, postice irregulariter plicata vestita, albo flavescente, intus candida; latere antico paulo brevior, late rotundato, postico paulo attenuato, subtruncato; umbonibus latis, depressiusculis, oppositis, approximatis, apice acutis; cardine angustissimo; fossula minima, brevi, angusta, non obliqua; dente cardinali parvo, acuminato, lateralibus brevibus, marginalibus fere obsoletis; sinu pallii brevi, triangulari, apice obtuso.*

Hab. Philippines. Coll. Cuming.

77. *CÆCELLA ZEBUENSIS*, Desh. *C. testa ovato-subtrigona, compressiuscula, tenui, subæquilaterali, transversim obsolete et irregulariter striata, alba, epidermide flavicante vestita; latere antico brevior, late obtuso, non declivi, latere postico æqualiter obtuso, margine inferiore regulariter arcuato; cardine solidulo, satis lato, fossula parum obliqua, acuminata, paulo prominente, dente cardinali compresso, acuminato, apice canaliculato, dentibus lateralibus inæqualibus, antico valvæ sinistræ obsolete; sinu pallii lato, brevi, subtrigono.*

Hab. Philippines, Zebu. Coll. Cuming.

78. *CÆCELLA CUMINGIANA*, Desh. *C. testa ovato-transversa, turgida, inæquilaterali, transversim inæqualiter striata, alba, sub epidermide flavescens irregulariter striata, crispa, postice sublamellosa; latere antico brevior, obtuso, superne declivi, postico paulo magis attenuato, æqualiter declivi, margine inferiore regulariter arcuato; umbonibus prominentibus, acuminatis, oppositis, acutis; fossula valde basi producta, postice obliquata, acuminata; dente cardinali depresso, dentibus lateralibus fere nullis; sinu pallii lato, apice obtuso, subtrigono.*

Hab. Philippines, Luzon. Coll. Cuming.

79. *CÆCELLA CHINENSIS*, Desh. *C. testa ovato-transversa, convexiuscula, solida, æquilaterali, epidermide fusciscente, decidua vestita, albo-cornea, transversim inæqualiter striata; latere antico paululum longior, declivi, obtuso, postico superne convexiusculo, latiore, obtuso, margine inferiore fere recto; umbonibus minimis, vix prominentibus, acutiusculis; cardine crasso, satis lato, dente cardinali compressissimo, lamellari, fossula profunda, vix obliqua, basi oblique truncata; dentibus lateralibus angustis, acutis, antico brevi; sinu pallii brevissimo, angusto, triangulari.*

Hab. Chinese Seas. Coll. Cuming.

80. *CÆCELLA CONVEXA*, Desh. *C. testa ovato-transversa, convexa, crassa, solida, æquilaterali, subsymmetrica, transversim obsolete inæqualiter striata, albo flavidula, sub epidermide decidua, tenui, pallide flavescens; latere antico superne paululum declivi, late obtuso, postico superne convexiusculo; margine inferiore regulariter arcuato; cardine crasso, lato; fossula basi acuminata, producta; dente cardinali compresso, apice sulco impresso bipartito, dentibus lateralibus inæqualibus, parum obliquis, antico minore, brevi; sinu pallii minimo, angusto, brevi, semielliptico.*

Hab. — ? Coll. Cuming.

81. *CÆCELLA LATA*, Desh. *C. testa ovato-subtrigona, convexiuscula, solida, æquilaterali, subsymmetrica, alba, sub epidermide tenui, flavescens, transversim tenue, obsolete et inæqualiter striata; latere antico et postico æqualiter declivibus, obtusis, margine inferiore regulariter arcuato; umbonibus minimis, acutis, oppositis, approximatis; cardine lato, crasso, fossula ad latus posticum parum obliquata, profunda, basi producta, acuminata, dente cardinali*

compresso, apice leviter sulcato, dentibus lateralibus inæqualibus, parum obliquis, antico minore, cardine adnato; sinu pallii minimo, brevi, angusto, subtriangulati.

Hab. Chinese Seas. Coll. Cuming.

82. *CÆCELLA HORSFIELDII*, Gray. *C. testa transversa, ovato-subtrigona, turgidula, tenui, fragili, æquilaterali, transversim inæqualiter tenue striata, epidermide flavo-rufescente vestita, alba; latere antico lato, superne recto, margine inferiore fere parallelo, late obtuso; latere postico attenuato, superne declivi, extremitate obtuso; umbonibus minimis, acutis, oppositis; dente cardinali angusto, compresso, sulco longitudinali partito, dentibus lateralibus minimis, angustis, brevibus, subæqualibus; fossula profunda in cavitate valvarum deflexa, lusi valde prominente et acuta; sinu pallii angusto, obtuso, profundo, horizontali.*

Hab. Madras.

83. *CÆCELLA TRANSVERSALIS*, Desh. *C. testa elongato-transversa, ovato-acuminata, æquilaterali, compressiuscula, irregulariter obsolete transversim striato-sulcata, squalide alba, sub epidermide rufescente, postice irregulariter plicata; latere antico elongato, obtuso, margine superiore recto, inferiori parallelo; latere postico attenuato, superne declivi, margine inferiore fere recto; cardine angusto, fossula paulo obliqua, valde basi prominente et acuta, angusta, profunda, dente cardinali compresso, acuto, canaliculato, dentibus lateralibus divaricatis, marginalibus antico minore; sinu pallii angusto, profundo, semielliptico.*

Hab. — ? Coll. Cuming.

84. *CÆCELLA OBLONGA*, Desh. *C. testa ovato-transversa, convexiuscula, elliptica, inæquilaterali, tenui, fragili, transversim tenue striata, alba, sub epidermide fulva, irregulariter tenue striata, in latere postico tenue plicata; latere antico paulo brevior, atque postico æqualiter obtusis, superne declivibus; margine inferiore fere recto; cardine angusto, fossula angusta, profunda, basi producta, oblique truncata, dente cardinali apice bifido, dentibus lateralibus submarginalibus, brevibus, angustis, antico vix perspicuo; sinu pallii angusto, satis profundo, obtuso, horizontali.*

Hab. Chinese Seas. Coll. Cuming.

85. *CÆCELLA ZELANDICA*, Desh. *C. testa elongato-transversa, elliptica, convexiuscula, solidula, inæquilaterali, transversim striata, epidermide flavescens vestita, albo-pellucida, utroque latere æqualiter obtusa et declivi; latere antico brevior; margine inferiore paululum arcuato; dente cardinali compresso, triangulari, acuminato, prominente; fossula angusta, profunda, obliqua, basi acuminata; dentibus lateralibus angustis, inæqualibus, antico brevi; sinu pallii profundo, lato, subtrigono, apice obtuso.*

Hab. New Zealand. Coll. Cuming.

86. *CAECILLA TENUIS*, Desh. *C. testa ovato-transversa, elliptica, subæquilaterali, convexiuscula, tenui, transversim tenuissime striata, alba, hyalina, epidermide flavescente vestita, extremitatibus æqualiter obtusa; latere antico paulo brevior et angustior, postico superne convexiusculo; margine inferiore recto; cardine angusto, fossula minima, obliqua, angusta, basi parum prominente, dente cardinali angusto, triangulari, apice bifido, dentibus lateralibus marginalibus compressis, inæqualibus, antico parvulo, brevi; sinu pallii lato, non profundo, obtuso.*

Hab. Philippines, Bohol. Coll. Cuming.

87. *MESODESMA CRASSULA*, Desh. *M. testa orbiculato-trigona, compressa, valde inæquilaterali, inæqualiter substriata, sub epidermide nitente, pallide flavescente alba; latere antico lato, elongato, obtuso, superne convexiusculo, declivi; latere postico brevi, lato, obtusissimo, semicirculari; umbonibus minimis, acutis, prominentibus; cardine brevi, lato, solido, fossula angusta, profunda, basi vix prominente, dente cardinali oblongo, in utroque latere fossulae dentibus lateralibus validis, antico longiore, postico valvulae dextrae conico, crasso, pyramidalis, acuminato; impressione pallii simplice.*

Hab. Philippines. Coll. Cuming.

88. *MESODESMA OVALIS*, Desh. *M. testa transversa, regulariter elliptica, æquilaterali, compressa, ad margines acuta, lævigata, nitida, alba, sub epidermide stramineo-viridescente, zonula ad peripheriam nigra, infucata; latere antico et postico æqualiter obtusis, superne paululum declivibus; cardine angusto, fossula lata, profunda, dentibus lateralibus valde divaricatis, fere marginalibus; sinu pallii brevissimo, vix inflexo, superne abrupte arcuato.*

Hab. New Zealand. Coll. Cuming.

89. *MESODESMA MACTROIDES*, Desh. *M. testa elongato-transversa, ovato-trigona, inæquilaterali, alba, hyalina, tenui, nitidissima, utroque latere hiant, transversim tenuissime inæqualiter striata; latere antico multo longiore, semielliptico, obtuso, attamen sensim attenuato, superne inferneque æqualiter convexiusculo; latere postico oblique declivi, subtruncato; cardine angusto, fossula mediana, lata, parum profunda, basi prominente, dentibus lateralibus valde divergentibus, marginalibus compressis, lamellosis, triangularibus, acuminatis; sinu pallii profundo, angusto, apice obtuse acuminato.*

Hab. — ? Coll. Cuming.

90. *MESODESMA TRANSVERSA*, Desh. *M. testa transversa, elongata, subæquilaterali, cuneata, lævigata, compressa, utraque extremitate obtusa, carneo-flavescente, transversim obsolete striata; latere antico paulo longiore, superne declivi, postico convexo, declivi, obtuso, margine inferiore fere recto; umbonibus minimis, productiusculis, acutis; cardine crasso, lato, dentibus*

validis tribus, altero duobus, laterali antico elongato, fossula profundissima, angusta, basi non producta; sinu pallii angusto, satis profundo, semiovali, horizontali.

Var. β . Testa minore, corneo-fusca.

Hab. — ? Coll. Cuming.

91. *MESODESMA ANGULUM*, Desh. *M. testa elongato-trigona, compressa, cuneiformi, maxime inæquilaterali, nitidissima, alba, eburnea; latere antico prælongo, late obtuso, superne recto, vix declivi, cum postico brevissimo angulum acutum formante; umbonibus minimis, acutis, terminalibus; cardine crassiusculo, postice brevissimo, fossula angustissima, profunda, basi producta, parum obliqua; dente laterali antico elongato, crasso, postico brevi, acuminato, angusto; sinu pallii lato, oblique semicirculari.*

Hab. Philippines. Coll. Cuming.

92. *MESODESMA LANCEOLATA*, Desh. *M. testa valde transversa, elongato-trigona, maxime inæquilaterali, cuneata, lanceolata; latere antico maximo, acuminato, superne concaviusculo, inferne vix convexiusculo; latere postico crassiore, sub angulo fere recto subito truncato, ad umbones angulato, angulo inferne evanescente; umbonibus acutis, angustis, subterminalibus, oppositis; latere postico irregulariter plicato; fossula cardinali brevi, late trigona, antice obliquata; dentibus lateralibus inæqualibus; antico elongato, compresso, cardine remoto; sinu pallii lato, profundo, semielliptico; valvis albo-flavis, nitidissimis.*

Hab. Western Australia. Coll. Cuming.

93. *MESODESMA HETERODON*, Desh. *M. testa transversa, trigona, compressa, inæquilaterali, nitida, obsoletissime striata, corneo-fuscescente; latere antico elongato, obtuso, superne concaviusculo, postico brevi, acuminato, declivi, truncato, sæpius irregulariter plicato; cardine angusto, tridentato in valvula sinistra, bidentato in altera, fossula angusta, profunda, antice obliquata, dente laterali antico elongato, cardine remoto, postico magno, conico, acuto, trigono, acuminato; sinu pallii brevissimo, angustissimo, semiovali.*

Hab. Western Australia. Coll. Cuming.

94. *MESODESMA ELONGATA*, Desh. *M. testa elongato-transversa, compressa, nitida, cuneiformi, valde inæquilaterali, corneo-flavescente, zonulis saturatioribus angustis interrupta; latere antico prælongo, late obtuso, superne recto, vix declivi, margine inferiore parum convexo; latere postico obtuso, oblique declivi, brevi, inferne angulato; umbonibus minimis, oppositis, fere nullis; cardine solidulo, fossula angusta, profunda, ad latus anticum obliquata; sinu pallii lato, brevissimo, subsemicirculari.*

Hab. Torres Straits. Coll. Cuming.

95. *MESODESMA ANGUSTA*, Desh. *M. testa elongato-angusta, compressa, cuneiformi, valde inæquilaterali, polita, nitida, corneo-fusca; latere antico longissimo obtuso, superne lente declivi; latere postico brevissimo, obtuso, truncato, inferne subangulato; cardine angustissimo, fossula angusta profundaque, antice valde obliquata, dente laterali antico angusto, prælongo, postico brevi, conico, acuto; sinu pallii brevi, lato, semicirculari; valvis tenuibus, fragilibus.*

Hab. Northern Australia. Coll. Cuming.

96. *MESODESMA NITIDA*, Desh. *M. testa transversa, subtrigona, valde inæquilaterali, compressa, cuneiformi, lævigata, epidermide cornea, nitente vestita, intus alba; latere antico longissimo, obtuso, parum attenuato, antice inferneque acuto; latere postico brevi, oblique truncato, ad extremitatem inferiorem angulato, area lunulaque nullis; cardine angusto; fossula angusta, profunda, antice obliquata, basi prominente, truncata, dente laterali antico elongato, angusto, cardine satis remoto; impressione pallii brevi, sinu brevi, angusto, oblique semicirculari.*

Hab. New Holland, Sydney, and Swan River. Coll. Cuming.

97. *MESODESMA PRÆCISA*, Desh. *M. testa transversa, subtrigona, crassa, solida, valde inæquilaterali, alba, nitente, ochraceo dilute tincta, inæqualiter obsolete striata; latere antico prælongo, late obtuso, margine superiore inferioreque fere parallelis; latere postico oblique truncato, obtuso; umbonibus minimis, acutis, vix prominentibus; cardine lato, crasso, solido, fossula angusta, profunda, basi prominente, dentibus lateralibus crassis, latis, depressis, obtusis; sinu pallii minimo, angusto, brevi, subtrigono.*

Hab. Van Diemen's Land. Coll. Cuming.

98. *MESODESMA RETUSA*, Desh. *M. testa brevi, transversa, compressa, maxime inæquilaterali, transversim minutissime striata, albo-flavescente, sub epidermide squalide fusciscente; latere antico prælongo, obtusissimo, margine superiore inferioreque rectis, parallelis; latere postico obtuso, perpendiculariter truncato, tantisper convexo; cardine angustissimo, fossula minima, angusta, basi acuto-prominente, dente cardinali obsoleto, dentibus lateralibus æqualibus, in valvula dextra prominentioribus; musculorum cicatriculis minimis; impressione pallii simplice.*

Hab. — ? Coll. Cuming.

99. *MESODESMA INTERMEDIA*, Desh. *M. testa ovato-trigona, subtransversa, crassa, solida, valde inæquilaterali, postice oblique truncata, squalide albo-flavida, transversim irregulariter striata, striis paululum undulatis, in latere postico profundioribus; latere antico obtuso, superne convexiusculo, declivi, postico brevissimo, oblique truncato, inferne subangulato; car-*

dine lato, crasso, fossula angusta, profunda; dentibus lateralibus crassis, subæqualibus, prominentibus, acuminatis; sinu pallii parvulo, angusto, brevi, oblique semicirculari.

Hab. — ? Coll. Cuming.

100. *MESODESMA MACRODON*, Desh. *M. testa minima, trigona, subtransversa, inæquilaterali, depressa, in medio convexiuscula, squalide albo-flavescente, transversim sulcata, sulcis irregularibus, approximatis, convexis, antice attenuatis, postice paulo eminentioribus; latere antico longiore, obtuso, superne declivi, postico obtuso, brevi, declivi; umbonibus minimis, acutis, brevibus; cardine lato, crasso; fossula sulciformi, profunda; dentibus lateralibus validis, subæqualibus, in utraque valva prominentibus; sinu pallii brevissimo, minimo, oblique subsemicirculari.*

Hab. — ? Coll. Cuming.

101. *MESODESMA LAYARDI*, Desh. *M. testa trigona, crassa, turgida, inæquilaterali, ad umbones pallide violacea, zonulis angustis aliquibus saturatioribus, valvis intus nitide pallideque violaceis, transversim obsolete striato-rugata, postice irregulariter plicata; latere antico paulo longiore, superne convexiusculo, declivi, inferne convexo, extremitate obtuso; latere postico obtuso, depresso, subplano, recto, valde declivi, inferne subangulato; cardine lato et crasso, dentibus, præcipue anticis, prominentibus, compressis, fossula angusta, profunda; sinu pallii minimo, angusto, obtuse triangulari.*

Hab. Ceylon.

102. *MESODESMA MITIS*, Desh. *M. testa ovato-trigona, transversa, turgidula, crassa, solida, subæquilaterali, transversim obsolete et inæqualiter striata, nitida; latere antico paulo longiore posticoque rectis, declivibus, æqualiter obtusis, margine inferiore regulariter convexo; cardine crasso, fossula profunda, basi non prominente, dentibus validis, postico valvæ dextræ majore, valde prominente, trigono, compressiusculo; sinu pallii minimo, brevissimo, trigono, apice acuto.*

Hab. Australia. Coll. Cuming.

103. *MESODESMA SULCATA*, Desh. *M. testa trigona, subtransversa, subæquilaterali, crassa, solida, in medio convexiuscula, apice acuminata, squalide albo-flavicante, transversim regulariter sulcata, sulcis latis, convexis, depressis, approximatis, ad apicem evanescentibus, postice alternatim interruptis; latere antico obtuso, atque postico æqualiter rectis et declivibus, margine inferiore parum convexo; latere postico parum convexo, sulcis minus regularibus; cardine crasso, fossula angusta, profunda; dentibus lateralibus crassis, postico maximo, triangulari, valde prominente; sinu pallii satis lato, brevissimo, ovato-triangulari.*

Hab. — ? Coll. Cuming.

104. *HETEROCARDIA CUMINGII*, Desh. *H. testa ovato-trans-*

versa, compressa, tenui, fragili, subæquilaterali, in medio convexiuscula, alba, transversim inæqualiter striata; latere antico paulo longiore, late rotundato, margine superiore antico recto, horizontali, inferiori parallelo; latere postico arcuatim truncato, hiante, inferne subangulato; umbonibus minimis, vix prominentibus; cardine angusto, fossula non obliqua, mediana, parum basi prominente, lamina cardinali angusta, canaliculata.

Hab. Manilla. Coll. Cuming.

105. *HETEROCARDIA GIBBOSULA*, Desh. *II. testa ovato-transversa, subtrigona, convexiuscula, subæquilaterali, omnino alba, transversim inæqualiter striata, in medio turgidiore, postice compressa, subito arcuatim truncata, hiante, superne gibbosula; latere antico angustiore, paulo longiore, superne declivi, antice obtuso, margine inferiore recto; fossula magna, non obliqua, valde prominente; lamella cardinali antice posticeque profunde canaliculata; sinu pallii profundo, superne latiore.*

Hab. Manilla. Coll. Cuming.

106. *HETEROCARDIA FABAGELLA*, Desh. *II. testa minima, ovato-transversa, convexiuscula, æquilaterali, in medio convexa, gibbosula, postice depressiuscula, omnino alba, transversim irregulariter striata; latere antico lato, obtuso, superne parumper declivi; latere postico arcuatim truncato, hiante, inferne obtuse subangulato; margine inferiore recto; cardine angusto, fossula non obliqua, profundiuscula, basi parum prominente; lamina cardinali angusta, canaliculata, angulum inferiorem versus prolongata; sinu pallii profundissimo, usque impressionem muscularem anticam attingente; umbonibus minimis, depressis, vix prominentibus.*

Hab. Philippines. Coll. Cuming.

107. *CYRENELLA SPHÆRICULA*, Desh. *C. testa orbiculari, globosa, subsphærica, inæquilaterali, tenui, fragili, sub lente tenuissime striata, alba, sub epidermide griseo-lutescente, tenuissima, striato-reticulata; latere antico brevi, obtuso, postico rotundato; umbonibus tumidis, approximatis; valvis tenuibus, intus albis; cardine angustissimo, utroque latere bidentato, dente antico valvulæ sinistrae porrecto, profunde fisso; impressionibus muscularibus angustis, marginalibus.*

Hab. Moreton Bay.

108. *CYRENELLA PHILIPPINARUM*, Sow. MSS. *C. testa suborbiculari, turgida, cordiformi, tenui, inæquilaterali, epidermide decidua, tenui, flavescens vestita, in latere postico fuscescente, albo irregulariter striata; latere antico brevior, superne declivi, in medio obtuso, parumper attenuato; latere postico multo latiore, angulato; area magna, in medio prominente, angulo circumdata; umbonibus tumidis, prominentibus, cordatis, approximatis; ligamento angusto immerso; cardine obliquo, angusto, inæqualiter bidentato, dente postico valvulæ dextræ lato, bilobato.*

Hab. Philippines. Coll. Cuming.

109. *CYRENELLA MORETONENSIS*, Desh. *C. testa orbiculato-ovata, tumida, cordiformi, inæquilaterali, transversim inæqualiter striata, incrementi irregulariter contabulata, epidermide squalide fusca, striata, decidua vestita; latere antico paulo brevior, obtuso, superne declivi, attenuato, postico latiore, obtuse angulato; area lata, angulo obtuso circumscripta; umbonibus tumidis, oppositis, prominentibus; cardine angusto inæqualiter bidentato; valvis tenuibus, intus lutescentibus.*

Hab. Moreton Bay. Coll. Cuming.

110. *CYRENELLA OBLONGA*, Sow. MSS. *C. testa ovato-transversa, turgida, inæquilaterali, albo-flavescente, sub epidermide decidua, tenui, flavescente, transversim striato-sulcata, sulcis inæqualibus, obsoletissimis; latere postico obtuse angulato, area magna, angulo circumscripta, in medio carinato-elevata; umbonibus brevibus, obliquis, approximatis; ligamento angusto, infoosso; latere antico paulo angustiore, brevior, obtuso, postico late truncato; cardine angustissimo dentibus primariis minimis, inæqualibus, in utraque valva majoribus, bifidis.*

Hab. Philippines. Coll. Cuming.

111. *CYRENELLA SENEGALENSIS*. *C. testa orbiculari, depressiuscula, lenticulari, tenui, fragili, irregulariter et dense striata, sub epidermide virescente, lamellosa et reticulata squalide fuscescente; umbonibus tumidis, acutis, approximatis; latere antico late obtuso, semicirculari, brevior, postico paulo angustiore; cardine angusto, in valva dextra dentibus tribus, divergentibus, mediano interposito, in valva sinistra dente unico angustissimo, lamellosa, elongato, adjecto altero posticali, brevissimo; valvis intus albocæruleis.*

Hab. Senegal. Coll. Cuming.

112. *CYRENELLA LENTICULARIS*. *C. testa orbiculari, convexiuscula, tenui, fragili, inæquilaterali, lenticulari, sub epidermide viridi-fuscescente transversim lamellosa-reticulato, albo-cærulescente; latere antico brevior; lunula magna, linea albescente, obsolete prominente circumscripta; cardine angustissimo, dentibus cardinalibus duobus in valva dextra, unico in sinistra; dentibus compressis, minimis, obliquis; ligamento angusto, elongato, partim immerso.*

Hab. —? Coll. Cuming.

113. *CYRENELLA PISIFORMIS*. *C. testa orbiculari, inflata, sphaeroidali, tenui, fragili, subæquilaterali, sub lente tenuissime striata, sub epidermide pallide straminea alba, latere antico angustiore, brevior, rotundato, postico late rotundato; cardine angusto, bidentato, dentibus inæqualibus, majoribus bifidis; cicatriculis musculorum longissimis, submarginalibus; umbonibus tumidis, prominulis, obtusis, fere oppositis.*

Hab. Philippines. Coll. Cuming.

114. SPHERIUM NOVÆ-ZELANDIÆ. *S. testa ovato-transversa, æquilaterali, compressa, nitidissima, pellucida, griseo-cærulescente, saturatiore irregulariter transversim zonata; latere antico obtuso, parum declivi, postico latiore, rotundato, margine inferiore convexo; umbonibus minimis, obtusis, vix prominentibus; ligamento minimo, inconspicuo; cardine angustissimo, bidentato, dentibus exiguis, lateralibus parvis, antico paulo majore.*

Hab. New Zealand; New Holland.

115. SPHERIUM INDICUM, Desh. *S. testa ovato-rhomboidea, tumidula, æquilaterali, tenui, pellucida, albo-grisea; latere antico late rotundato, postico obtuse truncato; umbonibus tumidis, parum prominentibus; cardine obsolete bidentato, dentibus lateralibus candidis, antico majore, trigono, acuto, postico paulo brevior; valvis sub lente tenuissime striatis.*

Hab. Indian rivers.

116. CORBICULA SQUALIDA, Desh. *C. testa ovato-transversa, subtrigona, subæquilaterali, tenui, turgidula, utraque extremitate obtusa, transversim sulcata, sulcis irregularibus, distantibus, aliquando interruptis, postice anticeque sæpius evanidis, epidermide viridi, fusco-atratre, squalide irregulariter maculata, lineolis capillaceis, undulatis, longitudinalibus ornata; umbonibus tumidis, integris, lævigatis; valvis intus violaceo-vinosis; cardine angusto, tridentato, altero bidentato; dentibus exiguis, lateralibus angustis, æqualibus, striato-serrulatis.*

Hab. —? Coll. Cuming.

117. CORBICULA INCRASSATA, Desh. *C. testa ovato-trigona, valde inæquilaterali, crassa, solida, cuneiformi, transversim dense striata, epidermide atro-viridi vestita; latere antico brevi, valde declivi, obtuso, postico subangulato; margine inferiore parum arcuato; umbonibus tumidis, oppositis, sæpius erosis; cardine incrassato, tridentato, dentibus cardinalibus subparallelis, laterali-bus densissime et argute striatis, antico paulo brevior.*

Hab. —? Coll. Cuming.

118. CORBICULA OBSCURA, Desh. *C. testa ovato-suborbiculari, depressiuscula, subæquilaterali, extremitatibus æqualiter obtusa, transversim irregulariter striata, striis antice profundioribus, epidermide atro-virescente vestita; cardine tridentato, dentibus æqualibus, divergentibus, lateralibus brevibus, angustis, antico paulo longiore; impressione pallii postice sinuosa, sinu brevissimo, lato.*

Hab. —? Coll. Cuming.

119. CORBICULA CONVEXA, Desh. *C. testa orbiculato-cordiformi, globulosa, inæquilaterali, crassa, solida, viridi-olivacea, tenuissime et irregulariter striata, ad umbones lævigata, antice brevior; umbonibus tumidis obtusis, oppositis; valvis solidiusculis, intus albis; cardine inæqualiter tridentato, dente mediano valvule dextræ bifido, dentibus lateralibus subæqualibus, angustis, tenue*

et breviter crenulatis; impressione pallii postice sinu parvulo, trigono terminata.

Hab. Central America.

120. *CORBICULA OBSOLETA*, Desh. *C. testa ovato-trigona, obliqua, tumidula, inæquilaterali, solidiuscula, transversim irregulariter striato-sulcata, epidermide olivacea vestita, zonulis obscurioribus interrupta, utroque latere declivi, antice lata, brevior, obtusa, postice subangulata; umbonibus prominentibus, obliquis; cardine angusto, dentibus cardinalibus tribus, minimis, subparallelis, dentibus lateralibus angustis, æqualibus, antico arcuato; valvis intus vivide violaceis.*

Hab. Uruguay. Coll. Cuming.

121. *CORBICULA SEMISULCATA*, Desh. *C. testa transversa, ovato-subtrigona, inæquilaterali, tumidula, solidiuscula, transversim incremento irregulariter substriata, antice regulariter sulcata, epidermide squalide virescente vestita, aliquando zonulis transversim nigrescentibus interrupta, intus profunde violacea; cardine tridentato, dentibus fere æqualibus, lateralibus validis, brevibus, postico cardine remoto; sinu pallii postico brevi, angusto, triangulari, acuto.*

Hab. Victoria River, Australia. Coll. Cuming.

122. *CORBICULA OVALINA*, Desh. *C. testa ovato-transversa, subæquilaterali, tenui, subventricosa, epidermide viridi vel nigrescente vestita, sulcis latis, ad latus posticum evanescentibus exarata; latere postico paulo longiore; cardine angusto, dentibus cardinalibus valde divaricatis, inæqualibus, lateralibus brevibus, antico paulo longiore, postico in medio prominentiore, utroque latere dense striato, cardine remoto.*

Hab. Port Essington. Coll. Cuming.

123. *CORBICULA TUMIDA*, Desh. *C. testa regulariter ovato-transversa, tumida, tenui, subæquilaterali, postice paulo longiore, utraque extremitate æqualiter obtusa, epidermide viridi, nitente vestita, transversim sulcata, sulcis valde distantibus; umbonibus parvis, turgidulis, integris; cardine angustissimo, dentibus cardinalibus tribus, angustis, inæqualibus, valde divergentibus, lateralibus angustissimis, arcuatis, argute crenulato-striatis.*

Var. β . *Testa juniore, epidermide glaucescente, valvulis intus extusque fusco trimaculatis.*

Hab. Borneo. Coll. Cuming.

124. *CORBICULA MALACCENSIS*, Desh. *C. testa ovato-transversa, subtrigona, inæquilaterali, turgidula, solidula, epidermide glaucescente vestita, transversim regulariter et tenue sulcata, extremitatibus obtusa, latere antico longiore; cardine angusto, tridentato, altero bidentato; dentibus lateralibus angustis, tenuissime striatis, antico longiore; valvis intus albis, vel pallide violaceo tinctis.*

Hab. Malacca. Coll. Cuming.

125. CORBICULA GRANDIS, Desh. *C. testa orbiculato-trigona, solida, tumidula, inæquilaterali, transversim irregulariter rugosa, antice sulcis magis regularibus exarata, latere antico brevior, late arcuato, postico magis attenuato, epidermide nitidissimo, nigrescente vestita, ad margines flavescente, postice squamosa; valvis intus palliæ flavis; cardine incrassato, tridentato, dentibus approximatis, lateralibus brevibus, crassis, irregulariter striato-denticulatis.*

Hab. China. Coll. Cuming.

126. CORBICULA CASHMIRIENSIS, Desh. *C. testa ovato-transversa, subtrigona, æquilaterali, tumidula, transversim tenue et regulariter striata, striis postice evanescentibus, epidermide nitida, atro-virescente, in latere postico tenuissime striata vestita; umbonibus tumidis, prominentibus, profunde erosis, violaceis; cardine angusto, in valva dextra bidentato, in altera tridentato, valvulæ dextræ dente antico laterali adnato, dentibus primariis divergentibus, simplicibus, lateralibus longis, angustis, antico longiore, cardine proximo; valvis intus violaceis, impressione pallii margine valde remota.*

Hab. Cashmere. Coll. Cuming.

127. CORBICULA TRIGONA, Desh. *C. testa trigona, æquilaterali, compressiuscula, antice paulo latiore et obtusior, utroque latere æqualiter declivi, transversim tenue et regulariter striata, epidermide viridi, nitente induta, intus pallide violacea; umbonibus minimis, brevibus, acutis; lunula ovata, angulo obsoleto circumscripta, pallida, lævigata; cardine angusto, bidentato, altero tridentato; dentibus lateralibus æqualibus, tenuissime striatis, antico leviter arcuato.*

Hab. Pondicherry. Coll. Cuming.

128. CORBICULA STRIATELLA, Desh. *C. testa ovato-transversa, depressiuscula, subæquilaterali, extremitatibus æqualiter obtusa, transversim regulariter lirata, liris ad latus posticum evanescentibus, epidermide pallide virescente, nitida vestita, intus atro-violacea; umbonibus brevibus, atro-violascentibus, pallidior biradiatis; cardine angusto, tridentato, dentibus inæqualibus, divaricatis, postico longiore et angustiore, dentibus lateralibus elongatis, angustis, subæqualibus, arcuatis, tenuissime striatis.*

Hab. Pondicherry. Coll. Cuming.

129. CORBICULA BENGALENSIS, Desh. *C. testa ovato-subtrigona, depressiuscula, tenui, subæquilaterali, obsolete transversim striata, striis regularibus, distantibus, epidermide flavescente, nitidissima, intus alba, in medio macula rubescente notata; umbonibus minimis, acutis; cardine angusto, tridentato, altero bidentato; dentibus lateralibus angustissimis, argute striatis.*

Hab. Bengal. Coll. Cuming.

130. CORBICULA BENSONI, Desh. *C. testa ovato-transversa, subtrigona, æquilaterali, lævigata, nitida, depressiuscula, extremitatibus obtusa, utroque latere æqualiter declivi, epidermide tenui, nitente, virescente vel flavesciente induta, aliquantisper lineis interruptis, fuscis radiata, intus alba, vel pallide violascente; cardine angusto, tridentato, dentibus inæqualibus valde divaricatis, dentibus lateralibus prælongis, angustissimis, tenuissime striato-crenatis, antico paullo longiore.*

Hab. Bengal (Benson). Coll. Cuning.

131. CORBICULA AMBIGUA, Desh. *C. testa ovato-trigona, æquilaterali, subcordiformi, transversim dense striato-sulcata, striis regularibus, antice posticeque evanescentibus, epidermidenitente, nigro-virescente vestita, in latere postico tenuissime striato-lamellosa, intus violacea; umbonibus angustis, prominentibus, antice obliquatis; latere antico atque postico æqualiter convexiusculis, declivibus, obtusis; cardine angusto, dentibus tribus primariis inæqualibus, brevibus, simplicibus, antico valvæ dextre dente laterali adnato, dentibus lateralibus æqualibus, longis, extremitate inferiore leviter arcuatis, crenulato-striatis.*

Hab. Euphrates.

132. CORBICULA TRIANGULARIS, Desh. *C. testa trigona, æquilaterali, alta, tumidula, solida, epidermide fuscescente vestita, transversim irregulariter striato-rugosa, utroque latere æqualiter declivi; umbonibus prominentibus, violaceo-lividis vel roseis, violaceo subradiatis; valvis intus superne rubescentibus, ad margines violaceis; cardine incrassato, inæqualiter tridentato; dentibus lateralibus crassis, prælongis, tenuissime striatis.*

Hab. — ? Coll. Cuming.

133. CORBICULA SULCATINA, Desh. *C. testa ovato-trigona, turgidula, cordiformi, subæquilaterali, obliqua, transversim dense et tenue sulcata, sulcis postice evanescentibus; lunula depressa, lævigata; epidermide viridi-flavescente, ad umbones decorticata; umbonibus lævigatis, prominentibus, obliquis; intus candida, ad margines pallide castanea; cardine angusto, utroque latere bidentato, dentibus lateralibus æqualibus, brevibus, striatis.*

Hab. — ? Coll. Cuming.

134. CYRENA (ANOMALA) MARITIMA, C. B. Adams. *C. testa orbiculato-cordiformi, subæquilaterali, turgida, tenui, transversim irregulariter et dense striata, epidermide viridi-fuscescente induta; umbonibus magnis, parum obliquis, approximatis, acutis, lævigatis; latere antico superne declivi, convexiusculo, in medio parumper attenuato et obtuso, postico brevi, truncato, area magna, convexa, ovata, angulo obtuso, decurrente circumdata; cardine angusto, dentibus primariis tribus, minimis, subæqualibus, approximatis, apice bifidis, divergentibus,*

lateralibus æqualiter remotis, in valva dextra duplicatis, antico usque ad cardinem canaliculato.

Cyrena maritima, C. B. Adams, Panama Shells.

Hab. Panama. Coll. Cuming.

135. *CLEMENTIA CUMINGII*, Desh. *C. testa ovato-transversa, tenui, turgida, valde inæquilaterali, alba, transversim late plicata et inæqualiter striata, irregulariter et dense punctato-rugosa, ad margines plicis depressioribus; latere antico brevissimo, declivi, obtuse attenuato, inferne convexo, lunula ovata, superne impressa notato; latere postico ellipsoideo, superne convexiusculo, late obtuso, irea elongato-lanceolata, excavata, angulo acuto circumdata; cardine angusto, dentibus tribus in valva dextra, duobus in altera, dentibus duobus anticis appproximatis in valva dextra; sinu pallii profundo, triangulari, peroblique ascendente.*

Hab. Red Sea. Coll. Cuming.

136. *BATISSA AUSTRALIS*, Desh. *B. testa ovato-subrhomboidali, convexa, crassa, solida, inæquilaterali, subgibbosa, epidermide atro-virescente, nitente vestita, transversim, præcipue antice, sulcata, sulcis irregularibus, postice evanescentibus; latere antico brevior, obtuso, superne subrecto et declivi; latere postico lato, rotundato, obtusissime biangulato; umbonibus obliquatis, profunde erosis; cardine lato, incrassato, dentibus primariis tribus in unaquaque valva, validis, crassis, mediano valvæ dextræ majore, apice bifido, lateralibus inæqualibus, postico longiore, angustiore, antico crasso, brevi; valvis intus ad margines violaceis.*

Hab. Australia. Coll. Cuming.

137. *SANGUINOLARIA PURPUREA*, Desh. *S. testa ovato-transversa, tenui, fragili, pellucida, convexiuscula, inæquilaterali, omnino intus extusque purpureo-sanguinea, transversim obsolete et irregulariter striata; latere antico brevior, lato, semielliptico, superne inferneque convexiusculo; latere postico attenuato, superne recto, declivi, obtuso, hiant, cardine in unaquaque valva inæqualiter bidentato; sinu pallii triangulari, superne angulato, antice oblique truncato, impressionem muscularem posticam versus longe strangulato.*

Hab. — ? Coll. Cuming.

138. *IPHIGENIA PSAMMOBIALIS*, Desh. *I. testa ovato-transversa, turgida, tenui, fragili, æquilaterali, transversim tenue et obsolete striata, sub epidermide squalide fusciscente, decidua albo-lutescente, intus violaceo-pallido tincta; latere antico semi-ovali, obtuso, superne inferneque convexiusculo; latere postico paulo attenuato, superne subrecto et paulo declivi, extremitate truncato; cardine angustissimo, dentibus duobus primariis angustis, valde divaricatis in valva sinistra, dente unico crasso,*

obtusum, bipartito in valva dextra; sinu pallii elongato, angusto, obtuso, horizontali.

Hab. — ?

139. MACTRA ALTA, Desh. *M. testa trigona, alta, subæquilaterali, turgida, convexa, tenue transversim irregulariter striata, epidermide squalide fusca vestita, omnino alba; latere antico paulo brevior, superne convexo, deinde recto et declivi; margine postico æqualiter superne convexo, deinde declivi, recto, attenuato, brevi, truncato, in truncatura hians; latere postico obtuse biangulato; umbonibus tumidis, acutis, oppositis; cardine angusto, dente cardinali submarginali, fossula angusta, profunda, sub cardine canaliculata; dentibus lateralibus magnis, compressis, triangularibus, valde prominentibus; sinu pallii minimo, trigono, obtuso.*

Hab. Australia.

140. CAPSA (CAPSELLA) MINOR, Desh. *C. testa ovato-transversa, compressa, tenui, fragili, subæquilaterali, irregulariter striato-sulcata, epidermide flavescens vestita, albo-violacea, ad umbones alba, violaceo-radiata, intus rubro-violacea, in medio albida; latere antico obtuso, parum attenuato, superne convexiusculo, declivi; latere postico angustiore, attenuato, perpendiculariter subtruncato, flexura vix manifesta bipartito; cardine bidentato, altero unidentato, dentibus crassiusculis, bifidis, nymphis intus callosis, brevibus, prominentibus; sinu pallii profundo, horizontali, linea superiore inferiori parallela.*

Hab. Philippines, Manilla. Coll. Cuming.

141. CAPSA (CAPSELLA) DIFFICILIS, Desh. *C. testa elongato-transversa, tumidula, tenui, æquilaterali, transversim substriata, epidermide viridi aut flavescens vestita, griseo-violacea vel pallide violaceo-flavescens, intus purpurascens aliquantisper subradiata, ad latus posticum saturatiore purpureo-violacea; latere antico obtuso, superne recto, aliquando parum declivi, postico oblique truncato, angulo obtusissimo, oblique decurrente distincto, in medio linea impressa bipartito, irregulariter rugoso; area postica minima, plana, angulo obtuso separata; cardine angusto, dentibus primariis minimis, obtusis, in valvula dextra duobus, in altera unico; sinu pallii elongato, sub angulo obtuso oblique parumper ascendente.*

Var. β. Testa omnino violacea.

Var. γ. Testa superne paululum declivi, griseo-violacea.

Var. δ. Testa fere albida, in latere postico violacea.

Hab. Philippines. Coll. Cuming.

142. CAPSA (CAPSELLA) RUFA, Desh. *C. testa elongato-transversa, tenui, fragili, compressiuscula, subæquilaterali, transversim irregulariter striata, vel obsolete sulcata, epidermide rufescens vestita, ad umbones decorticata, latus posticum versus fusca, intus roseo-purpurascens, in latere postico vivide violacea; cardine*

angustissimo, fere edentulo, nymphis angustis, brevibus; sinu pallii profundo, lato, subovali, horizontali.

Hab. Philippines, Manilla. Coll. Cuming.

143. CAPSA (CAPSELLA) RADIATA, Desh. *C. testa ovato-transversa, tenui, turgidula, paulo hiant, utroque latere subæquilaterali, transversim obsolete et inæqualiter striata, epidermide tenui, pallide straminea vestita, pallide-albo violascente, violaceo multi-radiata, intus purpurascente, violaceo-radiata; latere antico superne paulo declivi et convexiusculo, extremitate attenuato; latere postico paulo longiore, latiore, superne recto, oblique et obtuse truncato, angulo obtuso, decurrente separato, transversim satis regulariter striato; cardine angusto, bidentato, altero unidentato, dentibus obtusis, in valva dextra æqualiter divaricatis; sinu pallii lato, profundo, apice obtuso.*

Var. β . *Testa paulo angustiore rosea, vix radiata.*

Var. γ . *Testa omnino candida.*

Hab. Philippines. Coll. Cuming.

144. CAPSA (CAPSELLA) ROSACEA, Desh. *C. testa elongato-transversa, depressiuscula, tenui, subæquilaterali, substriata, epidermide straminea vestita, pallideviolaceo obscure pauci-radiata, intus pallide rubescente, violaceo-maculata et subradiata; latere antico paulo brevior, obtuso, paulo attenuato, postico superne recto, paulo declivi, angustato, oblique truncato, angulo obtusissimo distincto, margine inferiore paulo convexo, fere recto; dentibus cardinalibus parvis, obtusis; sinu pallii elongato, lato, horizontali.*

Hab. Philippines. Coll. Cuming.

145. CAPSA (CAPSELLA) CHINENSIS, Desh. *C. testa elongato-transversa, tenui, convexiuscula, inæquilaterali, epidermide corneofuscescente, nitente, peripheriam superante vestita, transversim obsolete striato-rugosa, alba, in impressione musculari postica violaceo-maculata; latere antico paulo longiore, obtuso, superne recto, paulo declivi; latere postico depressiusculo, oblique truncato, superne declivi, cardine angusto, bidentato, altero unidentato, dentibus minimis, brevibus, nymphis callosis; sinu pallii profundissimo, angusto, obtuso, horizontali, marginibus parallelis.*

Hab. Chinese Seas. Coll. Cuming.

146. CAPSA (CAPSELLA) LAYARDI, Desh. *C. testa ovato-transversa, tenui, fragili, convexiuscula, subæquilaterali, transversim inæqualiter striata, epidermide corneo-viridi vestita, intus alba, ad impressionem muscularem posticam fusco unimaculata; latere antico paulo longiore atque postico æqualiter obtusis, superne convexiusculis; cardine angustissimo, bidentato, altero unidentato, dentibus minimis, brevibus, fere obsoletis, nymphis elongatis, triangularibus, prominentibus; impressione pallii margine remota, sinu profundo, horizontali, satis lato, ellipsoideo, apice obtuso.*

Hab. Ceylon. Coll. Cuming.

147. CAPSA (CAPSELLA) TENUIS, Desh. *C. testa elongato-transversa, ellipsoidea, compressiuscula, inæquilaterali, tenui, fragili, utraque extremitate æqualiter obtusa, transversim obsolete striata, epidermide viridi, nitente vestita, pallide violaceo obscure et pauci-radiata, intus violacea, aut albida et violaceo-maculata; latere antico longiore, margine superiore recto, inferiori fere parallelo, postico compressiusculo, superne paulo declivi; cardine angustissimo, bidentato, altero unidentato, dentibus minutissimis, sinu pallii profundo, lato, apice obtuso, horizontali, a margine remoto.*

Hab. Philippines. Coll. Cuming.

148. CAPSA (CAPSELLA) CRASSULA, Desh. *C. testa ovato-transversa, paulo subtriangulari, æquilaterali, transversim inæqualiter striato-sulcata, epidermide flavescente vel fuscrescente vestita, ad umbones decorticata, intus purpurea; latere antico obtuso, semi-elliptico, postico late subtruncato, flexura obliqua bipartito, hiatu duplici terminato; cardine angusto, bidentato, altero unidentato, nymphis elongatis, crassis, callosis, prominentibus; sinu pallii lato, profundo, dilatato, apice obtuso.*

Hab. Philippines.

149. CAPSA (CAPSELLA) VIRESCENS, Desh. *C. testa elongato-transversa, tenui, tumida, subæquilaterali, nitida, obsolete transversim substriata, sub epidermide flavo-virente alba, aliquantisper violaceo-rubente longitudinaliter strigata; latere antico obtuso, postico oblique truncato; nymphis brevibus, prominentibus, crassis; cardine angusto, in utraque valva unidentato; sinu pallii oblongo, profundissimo, marginibus parallelis, superiore ad extremitatem paulo declivi.*

Hab. — ?

150. CAPSA (CAPSELLA) LUNULATA, Desh. *C. testa elongato-transversa, subtrigona, æquilaterali, tenui, translucida, tenue et irregulariter transversim striata, epidermide corneo-flavescente vel fuscrescente, nitente vestita, intus albo-cærulescente, submargari-tacea, margine superiore utroque latere æqualiter declivi, margine inferiore regulariter arcuato; latere antico obtuso, parum attenuato, postico oblique et obtuse truncato, angustato; cardine angusto, bidentato, altero unidentato, dentibus minimis; nymphis brevibus, triangularibus, acutis, prominentibus; sinu pallii elongato, angusto, horizontali, in medio paulo latiore, apice obtuso; in latere antico lunula impressa, elongato-lanceolata.*

Var. β . *Testa intus violacea, extus fusca.*

Var. γ . *Testa minore, depressiuscula, zonulis aliquibus atratis, transversalibus interrupta.*

Hab. Philippines; var. β . Ceylon.

151. CAPSA (CAPSELLA) SOLENELLA, Desh. *C. testa elongato-transversa, elliptica, tumidula, subæquilaterali, transversim tenue striata, superne in latere postico tenue sulcata, epidermide tenui*

vestita, ad umbones violacea, margines versus pallidior; latere antico obtuso, superne concaviusculo ad extremitatem depresso; latere postico subgibboso, angulo obtuso, obliquo separato, superne parum declivi, oblique late truncato; cardine angustissimo, fere edentulo, nymphis angustis, elongatis, intus callosis; sinu pallii latissimo, oblique ascendente, subspathulato.

Hab. Manilla. *Coll.* Cuming.

152. *DONAX ACUTANGULA*, Desh. *D. testa elongato-transversa, angusta, tenui, fragili, convexiuscula, valde inæquilaterali, polita, nitida, pallida, albo-flavescente transversim anguste et irregulariter zonata, intus albo-lutescente; latere antico prælongo, parum arcuato, extremitate obtuso et paulo hiante, margine inferiore regulariter arcuato, antice paulo ascendente; latere postico oblique abrupte truncato, hiante, in medio subcarinato, inferne angulo acutissimo terminato, angulo carinato, obliquo circumscripto, transversim eleganter undato-striato, striis sublamellosis, tenuibus, marginibus integerrimis.*

Hab. Saboon, West Africa. *Coll.* Cuming.

153. *DONAX NITIDA*, Desh. *D. testa elongato-transversa, angusta, valde inæquilaterali, solidula, convexa, subcylindracea, utraque extremitate attenuata, lævigatissima, polita; latere antico elongato, superne inferneque paulo convexiusculo, extremitate attenuato; latere postico brevi, oblique truncato, obtuse angulato, inferne acuminato, plicis obliquis, profundis, arcuatis ornato; lunula elongato-lanceolata, pallide violaceo-carnea; valvis intus extusque albis.*

Hab. Moreton Bay. *Coll.* Cuming.

154. *DONAX PETALINA*, Desh. *D. testa elongato-transversa, angusta, subæquilaterali, tenui, pellucida, fragili, nitida, in latere antico albo-opaca, in medio posticeque translucida, violaceo late biradiata, longitudinaliter tenuissime antice posticeque striata; latere antico paulo longiore, angustiore, attenuato, obtuso, superne parum declivi; latere postico latiore, non angulato, obtuso, margine superiore recto, inferiori parallelo; cardine angusto, dente laterali antico brevi, crassiusculo, approximato, postico elongato, angusto, remoto, marginibus tenuissime crenulatis, antice crenulis intus sulciformibus; sinu pallii elongato, angusto, obtuso, horizontali.*

Hab. —? *Coll.* Cuming.

155. *DONAX AËNEA*, Mörch MSS. *D. testa elongato-angusta, minima, tenui, pellucida, valde inæquilaterali, iridiscente omnino lævigata, pallide straminea; latere antico longiore obtuso, paulo attenuato, postico non angulato, obtuso, inferne acuminato; marginibus minutissime et regulariter crenulatis.*

Hab. Tranquebar? *Coll.* Cuming.

156. *DONAX PERUVIANA*, Desh. *D. testa elongato-subtrigona, valde inæquilaterali, crassa, solida, convexiuscula, omnino alba,*

radiatim tenue striata, striis angustissimis, parum elevatis; latere antico multo longiore, superne recto, inferne convexo, regulariter arcuato, extremitate attenuato; latere postico obtuso, vix obtusissime angulato, striis tenuioribus impressis donato, sub ligamento paulo prominente; cardine bidentato, dentibus lateralibus validis, in valva dextra parum dilatatis; sinu pallii profundo, ovali, obtuso, oblique ascendente, marginibus regulariter profundeque crenatis.

Hab. Peru.

157. DONAX BELLA, Desh. *D. testa elongato-transversa, tenui, compressiuscula, valde inæquilaterali, pallide albo-straminea, eleganter roseo-purpurascente pauci-radiata, longitudinaliter striata, striis tenuissimis, in latere postico profundioribus; latere antico prælongo, obtuso, compresso, superne recto, margine inferiore parallelo; latere postico oblique truncato, inferne acuminato, non angulato; cardine angusto, dentibus primariis minimis, lateralibus subæqualibus, elongatis, cardine remotis; sinu pallii lato, ovato, in medio dilatato, marginibus tenuissime crenulatis.*

Hab. Acapulco. Coll. Cuming.

158. DONAX CONRADI, Desh. *D. testa elongato-transversa, subtrigona, solidula, compressa, inæquilaterali, radiatim tenue striata, grisea, fusco dilute picta, postice violascente, aliquantisper albo-grisea vel rufescente, striis impressis in medio simplicibus, antice posticeque punctatis; umbonibus minimis, albis, violaceo breviter biradiatis; latere antico elongato, attenuato, cuneiformi, superne recto, declivi, postico oblique truncato, obtuso, inferne subangulato, striis multo tenuioribus; lunula elongato-lanceolata, angusta, impressa, violacea, angulo marginata; valvis intus violaceis; cardine albo; sinu pallii elongato, horizontali, obtuso, marginibus parallelis; marginibus tenue crenulatis.*

Hab. California.

159. DONAX AFFINIS, Desh. *D. testa elongato-transversa, compressiuscula, lævigata, nitida, inæquilaterali, sub epidermide flavicante pallide flavida vel violascente; latere antico prælongo, late obtuso, superne recto, vix declivi, margine inferiore fere recto, superiori parallelo; latere postico obtuso, declivi, non angulato, inferne attenuato, lunula angusta, lanceolata, ad umbones canaliculata; cardine angusto, in utraque valva inæqualiter bidentato, dente majore valvulæ dextræ lato, bifido, dentibus lateralibus obsoletissimis; sinu pallii profundo, ovato, obtusissimo, marginibus tenue denticulatis; valvis intus violaceis, in medio radio lato, albo notatis.*

Hab. Red Sea. Coll. Cuming.

Obs. Species forma et facie *Donaci truncato* Lamk. simillima, sed distincta colore magis albido, lunula minus carinata, et præcipue sinu pallii majore atque profundiore.

160. *DONAX LÆVIGATA*, Desh. *D. testa elongato-transversa, oblongo-triangulari, valde inæquilaterali, crassa, solida, convexiuscula, polita, nitente, obsoletissime radiatim striata, pallide fuscescente, vel grisea, vel violascente late uni- vel bi-radiata, latere antico prælongo vix attenuato, obtuso, superne inferneque fere recto; latere postico obtuse angulato, truncato, plano, tenue striato, inferne subangulato, marginibus crenulatis; cardine crasso, bidentato, dentibus lateralibus validis, inæqualibus, antico longiore, in valva dextra dilatatis; sinu pallii magno, oblique ascendente, ovali, obtuso.*

Hab. North America. Coll. Cuming.

161. *DONAX ACUMINATA*, Desh. *D. testa elongato-trigona, crassa, tumida, solida, valde inæquilaterali, alba, pallide violacea in latere postico, longitudinaliter striata, striis minutissime impresso-punctatis; latere antico prælongo, valde attenuato, acuminato, superne recto, declivi, inferne paulo convexo; latere postico brevissimo, truncato, plano, angulo obtuso circumscripto, striis tenuioribus, profundioribus, simplicibus; valvis intus albis, in latere postico violaceo maculatis; cardine crassiusculo, dentibus lateralibus subæqualibus, æquidistantibus, in valva dextra validioribus; sinu pallii profundissimo, ovato, in medio dilatato; marginibus tenue crenulatis.*

Hab. —? Coll. Cuming.

162. *DONAX OBESULA*, Desh. *D. testa trigona, brevi, inæquilaterali, solida, turgida, albo-grisea vel pallide violascente, intus violacea, longitudinaliter impresso-striata, striis in medio simplicibus, antice transversim punctato-lineatis; latere antico trigono, superne recto, valde declivi, inferne convexiusculo, extremitate attenuato, subrostrato; latere postico brevi, subcordiformi, oblique truncato, plano, angulo obtuso distincto, longitudinaliter tenuissime striato, transversim striis undato-punctatis; lunula elongato-lanceolata, satis lata, superne excavata; marginibus tenue denticulatis; cardine angusto, bidentato, altero unidentato, dentibus lateralibus in valva dextra majoribus.*

Hab. Central America.

163. *DONAX OVALINA*, Desh. *D. testa ovato-transversa, compressa, solidula, inæquilaterali, utroque latere obtusa, alba, transversim inæqualiter striata; latere antico paulo longiore, superne recto, declivi, postico æqualiter declivi, non angulato, obtuso, striis paulo profundioribus; margine inferiore regulariter arcuato, convexo; cardine crassiusculo, inæqualiter bidentato, altero unidentato, et valvulæ dextræ dente unico crasso, obtuso; dentibus lateralibus inæqualibus, magnis, postico brevioribus, crassiusculo, antico longo, angusto; sinu pallii angustiusculo, obtuso, oblique ascendente, marginibus integerrimis.*

Hab. Central America. Coll. Cuming.

164. *DONAX STRIATELLA*, Desh. *D. testa elongato-transversa,*

triangulari, inæquilaterali, solida, turgidula, in medio dilatata, subventricosa, longitudinaliter tenuissime striata, albo pallide rosea, ad umbones incarnata; latere antico longiore, superne recto, in sutura canaliculato, extremitate attenuato, inferne convexo, ascendente; latere postico planissimo, angulo obliquo, acuto separato, inferne attenuato et acuto, striis in latere postico tenuioribus; cardine bidentato, dentibus lateralibus æqualibus, æquidistantibus, in valvula sinistra dilatatis; sinu pallii elongato, horizontali, obtuso, marginibus parallelis; marginibus tenue crenulatis.

Hab. Australia.

165. *DONAX GRANIFERA*, Desh. *D. testa trigona, brevi, crassa, solida, ventricosa, valde inæquilaterali, albo-grisea aliquando ad umbones et latus posticum violaceo tincta, intus alba, ad margines violacea, umbonibus maculis duabus violaceis, angustis notatis, longitudinaliter striata, striis tenuissimis, regularibus, impressis, ad latus posticum sensim latioribus, profundioribus et granosis; latere antico elongato, obtuso, superne recto et declivi, inferne recto et horizontali; latere postico abrupte truncato, angulo acuto separato, plano, striis transversis et longitudinalibus decussato, granoso; umbonibus prominentibus; lunula lanceolata, sæpius violaceo-tincta; marginibus tenue denticulatis.*

Hab. Columbia. Coll. Cuming.

166. *DONAX INTERRUPTA*, Desh. *D. testa trigona, cuneiformi, brevicula, solida, converiuscula, postice abrupta et planata, albo-grisea, vel pallide violascente, intus pallide violacea; latere antico elongato, superne recto, declivi, inferne in medio recto, antice ascendente, extremitate attenuato, radiatim striato, striis antice simplicibus, fere nullis, sensim profundioribus, ante angulum posticum profundis, in sulcos mutatis; latere postico angulo acuto abrupto distincto, plano, striis tenuibus longitudinalibus, transversalibus undatis, punctato-granosis, clathratis vel textiliosis, umbonibus parvis, obscure violaceo pallido quadriradiatis; marginibus tenue denticulatis.*

Hab. West Africa.

167. *DONAX DYSONI*, Desh. *D. testa trigona, alta, brevi, compressa, solidula, valde inæquilaterali, fere perpendiculariter truncata, albo-grisea, ad umbones breviter violaceo triradiata, intus violaceo dilute bimaculata, in medio et in latere postico antice levigatissima, sub lente obsolete transversim striata, in latere postico transversim rugata et interstitiis longitudinaliter striatis; latere antico trigono, superne recto, declivi, inferne recto, horizontali, extremitate obtuso; latere postico obtuso, non carinato, marginibus creberrime denticulatis; sinu pallii profundo, subtrigono, obtuso, postice dilatato; dentibus lateralibus validis, obliquis, subæqualibus.*

Hab. Indian Ocean. Coll. Cuming.

168. *DONAX CLATHRATA*, Desh. *D. testa minima, trigona, turgida, crassa, solida, brevi, abrupte truncata, angulata, albo-flava vel violascente, longitudinaliter argute transversim costellata, lamellis brevibus, numerosis, erectis eleganter decussata, costulis ad angulum posticum duabus tribusve distantioribus; latere postico brevissimo, sulco lato, sub angulo circumscripto, costellis granosis ornato; lunula impressa, elongato-lanceolata, minutissime transversim striata.*

Hab. — ? *Coll.* Cuming.

169. *TELLINA CRASSULA*. *T. testa ovato-transversa, solidula, compressa, opaca, valde inæquilaterali, sub epidermide griseo-flavicante albo-cretacea, inæqualiter obsolete transversim striata; latere antico prælongo, leviter arcuato, longe elliptico, superne recto et horizontali, antice late obtuso, paulo dilatato, inferne parum convexo; latere postico brevissimo, fere perpendiculari, obtuso, vix flexo, non angulato; cardine angusto, in valva dextra bidentato, in altera unidentato, dentibus lateralibus nullis; sinu pallii elliptico, oblique ascendente.*

Hab. Northern Ocean.

170. *TELLINA TURGIDA*. *T. testa ovata, transversa, lata, turgida, satis tenui, subæquilaterali, squalide albo-fuscescente, intus candidissima, transversim satis regulariter striata, striis angustis, prominulis, striis obsoletis longitudinalibus numerosis decussatis; latere antico paulo longiore, latissimo, obtusissimo, inferne parum oblique producto; latere postico lato, subtruncato, superne declivi, sinu lato profundoque, contorto, in valva dextra biangulato, striis longitudinalibus prominentioribus; cardine angusto, bidentato, dentibus angustis, subæqualibus, apice bifidis; ligamento brevi, angusto, vix infosso; dentibus lateralibus nullis; sinu pallii irregulariter subquadrangulati, superne sinuoso.*

Hab. Catbalonga; Philippines. *Coll.* Cuming.

Obs. *T. lacunosæ* et *obesæ* affinis, attamen distincta forma, striis, cardine, et præcipue sinu pallii.

171. *TELLINA OBESA*. *T. testa ovato-transversa, crassa, solida, valde ventricosa, subæquilaterali, squalide alba, intus vivide aurantia, transversim inæqualiter striata, et striis incrementi crassis, inæqualibus irregulariter gradata; latere antico lato, paulo longiore, semicirculari; latere postico superne parum declivi, obtuso, plicatura lata profunde contorto, in valva dextra subtriangulato; umbonibus magnis, oppositis approximatis; ligamento magno, crasso, partim infosso; cardine crasso, inæqualiter bidentato; muscutorum cicatriculis maximis, antica ovata, postice rotundata; sinu pallii subtrapezoidali, superne dilatato et gibboso.*

Hab. Chinese Seas. *Coll.* Cuming.

Obs. *T. lacunosæ* affinis, sed multo magis tumida, magis crassa, intus aurantia, extus contabulata.

172. *TELLINA MORETONENSIS*, Desh. *T. testa ovato-trigona, convexiuscula, tenui, pellucida, subæquilaterali, omnino candida, transversim tenue striato-lamellosa, longitudinaliter sub lente tenuissime striata, lamellis transversis, distantibus, angustissimis, brevibus, in medio sæpius interruptis; latere antico lato, obtuso, semi-elliptico; latere postico attenuato, trigono, superne longe declivi, inferne obtuse angulato; umbonibus minimis, acutis, lævigatis; lunula parva, lunata, impressa; cardine bidentato, dentibus lateralibus nullis; sinu pallii magno, ovato, obtuso, superne dilatato, flexura posticali fere nulla.*

Hab. Moreton Bay. Coll. Cuming.

173. *TELLINA NUCLEOLUS*, Desh. *T. testa ovato-transversa, minima, convexiuscula, tenui, pellucida, maxime inæquilaterali, nuculæformi, postice sub angulo recto truncata, pallide rosea, transversim tenue et regulariter striata, striis impressis, in latere postico majoribus, profundioribus, alternatim interpositis; latere antico prælongo, longe semi-elliptico, superne recto, margine inferiore regulariter convexo; latere postico brevissimo, obtuso, flexura fere nulla; ligamento brevi; cardine satis crasso, dentibus lateralibus validis subæqualibus, postico cardine approximato.*

Hab. — ? Coll. Cuming.

174. *TELLINA FABAGELLA*, Desh. *T. testa regulariter ovato-transversa, crassiuscula, tumidula, inæquilaterali, pallide lutescente, transversim tenue et regulariter striata, striis profunde incisis; latere antico prælongo, longe semi-elliptico, obtuso; latere postico brevi, obtuso, superne recto, declivi, striis distantioribus, sublamellosis cum aliis alternantibus; flexura vix perspicua; lunula elongato-lanceolata, impressa, angulo acuto circumdata; cardine bidentato; dentibus cardinalibus validis, in valva dextra dilatatis; sinu pallii ovato-oblongo, horizontali, in medio paulo dilatato.*

Hab. Philippines, Luzon. Coll. Cuming.

175. *TELLINA ROMBERGI*, Mörch. *T. testa orbiculato-subtri-gona, solidula, convexiuscula, inæquilaterali, ad peripheriam albicante, roseo-rubente, radiis duobus ad umbones saturatioribus, brevibus, oblique tenuissime striata, striis in latere antico flexuosis, postice in angulo acutissimo flexis, striis posticalibus multo tenuioribus, in latere antico valvæ dextræ zonula longitudinali lævigata; latere antico brevi, late obtuso, subsemicirculari, postico superne recto, attenuato; cardine bidentato; dentibus lateralibus minimis, acutis, subæqualibus, remotis; sinu pallii subtriangulari, superne gibboso, ad extremitatem attenuato.*

Hab. Brazil. Coll. Cuming.

Tellina Rombergi, Mörch, Kjerulf. Cat.

Obs. *Tellinæ strigillatæ* affinis, standem distincta colore et striarum dispositione.

176. *TELLINA ORTUSALIS*, Desh. *T. testa parvula, ovato-trans-*

versa, tenuissima, nitida, turgidula, valde inæquilaterali, omnino rosco-purpurascens, transversim sub lente tenuissime et regulariter striata, striis in latere postico profundioribus; latere antico prælongo, obtuso, superne inferneque convexiusculo; latere postico brevissimo, obtusissimo; dentibus lateralibus in valva sinistra magnis, crassis, æqualibus.

Hab. — ?

177. *TELLINA JAPONICA*, Desh. *T. testa ovato-transversa, compressa, solidula, inæquivalvi, inæquilaterali, omnino candida, lævigata, polita, nitida; latere antico longiore, paulo attenuato, obtuso, superne convexiusculo, declivi, inferne in medio convexo, ad latus posticum ascendente; latere postico angulo decurrente, obtuso notato, inferne subangulato; valva dextra profundiore; cardine in utraque valva inæqualiter bidentata; ligamento partim infosso, in nymphis intus callosis affixo; sinu pallii magno, profundo, triangulari, superne valde angulato.*

Hab. Japan. Coll. Cuming.

178. *TELLINA VENTRICOSA*, Desh. *T. testa magna, ovato-transversa, subtrigona, tenui, ventricosa, subæquilaterali, omnino candida, sub epidermide tenui, griseo-flavescente, transversim inæqualiter striata; latere antico paulo brevior, obtuso, superne declivi, convexiusculo, extremitate paululum attenuato; latere postico attenuato, late rostrato, superne declivi, recto, extremitate oblique truncato; margine inferiore late convexo, ad extremitatem posticam coarctato; plicatura posticali nulla; cardine angusto, dentibus cardinalibus angustis, lateralibus nullis; sinu pallii parvo, angusto, sublanceolato.*

Hab. West African Coast. Coll. Cuming et Desh.

179. *TELLINA CONTABULATA*, Desh. *T. testa ovato-subrotunda, sublenticulari, solida, crassa, subæquilaterali, squalide albo-rufescente, irregulariter transversim obsolete striato-rugosa, incremento interrupto regulariter et distanter contabulata; latere antico lato, semicirculari, postico triangulari, inferne angulato, oblique late truncato, superne recto, declivi, angulo oblique decurrente distincto, flexura nulla; umbonibus acutis, oppositis; ligamento elongato, partim infosso; valvis intus candidis; cardine crasso, dentibus primariis angustis, brevibus, lateralibus nullis; sinu pallii brevi, superne acutissimo, dein excavato.*

Hab. Chinese Seas. Coll. Cuming.

180. *TELLINA OBLIQUARIA*, Desh. *T. testa suborbiculato-trigona vel subovata, tenui, compressiuscula, inæquivalvi, inæquilaterali, pallide lutescente, oblique tenuissimeque striata, striis numerosis approximatis, incisis, parum undulatis præcipue in latere antico; ad angulum posticum subito interruptis; umbonibus minimis, inæqualibus, approximatis, valvula dextræ umbone eroso, alterum recipiente; latere antico brevior, paulo attenuato, obtuso, superne*

declivi; latere postico magis attenuato, superne declivi, inferne subtruncato, angulo obtusissimo decurrente distincto, lævigato; cardine angusto, unidentato, in valva sinistra emarginato; dentibus lateralibus nullis; sinu pallii profundissimo, angusto, superne convexiusculo.

Hab. Pacific Ocean. Coll. Cuming.

181. *TELLINA TEXTILIS*, Desh. *T. testa ovato-transversa, satis lata, solidula, convexiuscula, alba, roseo-purpurascens ad umbones picta et dilute radiata, radiis ad margines evanidis, superne inter se confluentibus, intus pallide purpurea, oblique angustissime striata in valva dextra, striis transversis, obsoletis decussata et textiliosa, valvula sinistra lævigata; latere antico semi-ovali, longiore, postico brevi, obtuso, superne declivi; cardine crassulo, bidentato, dentibus lateralibus nullis; sinu pallii maximo, ad impressionem muscularem posticam subito ascendente, angulato, dein lente declivi; flexura posticali fere nulla.*

Hab. — ? Coll. Cuming.

182. *TELLINA DONACIFORMIS*, Desh. *T. testa elongato-transversa, solidiuscula, compressa, valde inæquilaterali, postice truncata, omnino alba, transversim angustissime striata, striis longitudinalibus exilibus, obsoletis subdecussata, latere antico longe elliptico, superne inferneque recto, obtuso, marginibus parallelis; latere postico brevissimo, inferne obtuse angulato, transversim tenue plicato, plicis ad angulum posticum obtusissimum abrupte terminatis; cardine angusto, bidentato, altero unidentato, dentibus minimis, lateralibus nullis; sinu pallii profundo, elongato, attenuato, in medio dilatato, superne undulato.*

Hab. Torres Straits. Coll. Cuming.

183. *TELLINA LAYARDI*, Desh. *T. testa elongato-trigona, tenui, fragili, compressa, valde inæquivalvi et inæquilaterali, candida, antice tenue transversim striata, in medio lævigata, postice sub lente minutissime longitudinaliter striata, striis densissimis; latere antico brevior, obtuso, postico fere duplo longior, sensim attenuato, subacuminato, superne recto et longe declivi, inferne parum convexo; cardine inæqualiter bidentato, dentibus lateralibus nullis; valva dextra profundior, sinistra planulata, sinu pallii breviculo, subtrapezoidali, late et oblique truncato; flexura nulla; area plana, angulo obtuso circumdata, eleganter striata.*

Hab. Ceylon. Coll. Cuming.

184. *TELLINA INQUINATA*, Desh. *T. testa trigona, crassa, solida, depressiuscula, inæquilaterali, sub epidermide squalide fusca albo-fusca, ferrugineo inquinata, transversim irregulariter striata, intus candida; latere antico late obtuso, subsemicirculari, superne parum declivi; latere postico cuneiformi, attenuato, superne recto et declivi, extremitate oblique truncato, inferne oblique angulato, flexura parum perspicua; ligamento prælongo, incrassato; cardine biden-*

tato, dentibus lateralibus nullis; sinu pallii magno, profundo, superne gibboso, deinde declivi et apice acuto.

Hab. Columbia.

185. *TELLINA SUENSONI*, Mörch. *T. testa rotundato-trigona, solidula, convexiuscula, inæquilateruli, squalide griseo-alba vel flavescente, sub epidermide tenui, decidua, griseo-flavescente, tenue et irregulariter transversim striata; latere antico longiore, semi-elliptico, marginibus subparallelis; latere postico triangulari, superne recto, declivi, extremitate attenuato, oblique truncato, angulato; flexura parum profunda; valvis per longitudinem arcuatis; cardine bidentato, altero unidentato, dente postico valvæ detræ profunde fisso; dentibus lateralibus nullis.*

Tellina Suenisoni, Mörch, Kjerulf. Cat.

Hab. Brazil. Coll. Cuming.

186. *TELLINA TICAONICA*, Desh. *T. testa parva, elongato-ovata, transversa, compressa, hyalina, tenuissima, inæquilaterali, nitida, polita, omnino pallide rosea; latere antico longiore, obtuso, superne convexiusculo, margine inferiore parallelo; latere postico brevi, truncato, inferne subangulato; ligamento brevi, prominente; cardine angustissimo, dentibus binis minimis, bifidis in valva dextra; sinu pallii maximo, profundo, superne valde angulato, sub umbonibus ascendente.*

Hab. Philippines, Ticao. Coll. Cuming.

187. *TELLINA NITENS*, Desh. *T. testa elongato-transversa, tenui, pellucida, depressiuscula, inæquilaterali, pallide rosea et coloribus variis nitente, transversim obsolete tenue striata; latere antico elongato, longe semi-elliptico, inferne superneque convexiusculo; latere postico triangulari, attenuato, extremitate angulato, margine inferiore fere recto; flexura vix inconspicua; cardine angustissimo, bidentato, altero unidentato, dentibus lateralibus nullis; sinu pallii magno, impressionem muscularem posticam versus subito ascendente, angulum formante, dein longe declivi usque ad impressionem anticam.*

Hab. —? Coll. Cuming.

188. *TELLINA ÆQUALIS*, Desh. *T. testa satis regulariter ovata, transversa, tenui, translucida, convexiuscula, æquilaterali, candida, rufo dilute maculata, nitente, transversim angustissime striata, obsoletissime radiata, utroque latere æqualiter obtusa et superne parum declivi, margine inferiore regulariter arcuato; umbonibus parvis acutis, oppositis; ligamento elongato, angusto, prominente; cardine angustissimo, dente primario unico, minimo, in utraque valva; sinu pallii profundo, horizontali, superne late gibboso, ad extremitatem excavato.*

Hab. Port Essington. Coll. Cuming.

189. *TELLINA COMPRESSA*, Desh. *T. testa late ovata, transversa, subæqualiter obtusa, solidula, complanata, subæquilaterali, omnino*

alba, transversim substriata; latere antico paullo latiore, late semi-elliptico, obtuso; latere postico parum attenuato, obtuso; margine inferiore regulariter convexiusculo; umbonibus acutis, prominentibus, compressis, approximatis; cardine latiusculo, in valva dextra bidentato, in sinistra unidentato, dentibus elongatis, angustis, prominentibus, lateralibus nullis; sinu pallii elongato, obtuso, ovali, superne dilatato, ad apicem declivi.

Hab. — ? *Coll.* Cuming.

190. *TELLINA CONTORTA*, Desh. *T. testa ovato-transversa, tenui, fragili, valde ventricosa, inæquilaterali, albo-cretacea, transversim tenuissime et satis regulariter striata, striis confertis; latere antico late semiovato, obtuso, superne convexiusculo, inferne recto, marginibus subparallelis; valvis in medio profunde contortis, postice profunde plicato-laminosis; umbonibus magnis, obliquis, apice truncatis, prominentibus; flexura posticali lata, profundaque, in valva dextra angulo carinato marginata, in valva sinistra costa rotundata, late formata; cardine angusto, bidentato, altero unidentato, dentibus bifidis lateralibus nullis; sinu pallii latissimo, subtrapezoidali.*

Hab. — ? *Coll.* Cuming.

191. *TELLINA DILATATA*, Desh. *T. testa late ovata, tenui, fragili, tumidula, subæquivulvi, inæquilaterali, albida, sub epidermide flavida, decidua, maculis punctiformibus, raris, irregulariter sparsis, rubro-castaneis, pallidis irrorata, transversim inæqualiter et obsolete striata; latere antico paulo longiore, lato, subsemicirculari; latere postico superne recto, declivi, obtuse truncato, attenuato; flexura torta, vix profunda, biplicata; valvis intus albis, sub umbonibus pallidissime roseis; dentibus primariis minimis, angustis, lateralibus nullis; sinu pallii magno, ovato, subspathuliformi, a linea inferiore detecto.*

Hab. — ? *Coll.* Cuming.

192. *TELLINA SANGUIOLENTA*, Desh. *T. testa elongato-transversa, ovata, solidula, compressiuscula, inæquilaterali, flavo-rubente, ad umbones purpurea vel violascente, intus vivide rubra, sanguineo colore tincta; latere antico elongato, obtuso, superne recto, margine inferiore rectiusculo, superiori parallelo; latere postico obtuso, superne recto, parum declivi, angulo decurrente, obtusissimo distincto; dentibus cardinalibus 2 inæqualibus, obliquis, lateralibus nullis; sinu pallii profundissimo, angusto, in medio dilatato.*

Hab. Philippines. *Coll.* Cuming.

193. *TELLINA MAZATLANICA*, Desh. *T. testa ovato-transversa, compressa, tenui, inæquilaterali, pallide albo flavidula, lævigata substriatave, nitidula; latere antico longiore, semi-elliptico, margine superiore inferiori parallelo; latere antico attenuato, superne recto, extremitate truncato; flexura vix perspicua; ligamento brevi, partim infosso; cardine bidentato, altero unidentato, den-*

tibus angustis, elongatis, lateralibus nullis; sinu pallii late ovato, apice parum angustato, horizontali.

Hab. Mazatlan. Coll. Cuming.

194. *TELLINA CUSPIDATA*, Desh. *T. testa orbiculato-trigona, tenui, pellucida, inflata, albo-grisea, nitida, laevigata; latere antico paulo longiore, late rotundato, subsemicirculari, postico triangulari, attenuato, subrostrato, cuspidato, superne recto et declivi; umbonibus minimis, acutis, oppositis; lunula satis magna, ovata, depressa, angulo obtuso circumscripta; cardine angustissimo, bidentato, dentibus lateralibus elongatis, angustissimis, antico cardine magis approximato.*

Hab. Chusan. Coll. Cuming.

195. *TELLINA CLAUSA*, Desh. *T. testa ovato-subtrigona, tumidula, crassa, solida, æquilaterali, undique clausa, pallide albo-flavescente, intus candida, transversim obsolete striata, superne æqualiter utroque latere declivi; latere antico obtuso, postico late truncato; cardine crasso, dentibus duobus inæqualibus, simplicibus in valvula dextra, antico prominentiore, dente unico crasso in valva sinistra; dentibus lateralibus crassis, subæqualibus, æquidistantibus; sinu pallii ovato, profundo, obtuso, in medio parum dilatato.*

Hab. West Indies.

196. *TELLINA DISCULUS*, Desh. *T. testa sublenticulari, orbiculari, superne vix angulata, in medio convexiuscula, æquilaterali, squalide alba, ad umbones pallide lutea, intus candida, in fornice sulphurea, transversim tenue striata, striis regularibus, obtusis, profundis, in flexura breviter lamellosis; latere antico late obtuso, subsemicirculari, postico vix in medio subtruncato, superne rectiusculo, declivi, margine inferiore late arcuato; cardine lato, crasso, dente laterali antico valido, obtuso, cardine approximato, postico nullo; flexura parum profunda; sinu pallii subtriangulari, superne valde angulato, apice obtuso.*

Hab. New Zealand.

197. *TELLINA PRETIOSA*, Desh. *T. testa ovato-trigona, crassula, tumidula, æquilaterali, omnino alba, longitudinaliter costellata, costellis regularibus, elatis, apice dilatatis, elegantissime squamulosis, squamulis dilatatis, erectis, circularibus, acutis, per series transversas atque longitudinales digestis; latere antico lato, obtuso, semi-elliptico, superne recto, declivi, postico triangulari, attenuato, superne recto, longe declivi; lunula minima, lanceolata, impressa, laevigata, angulo circumdata; area elongato-lanceolata, ad margines angulata, angulo altero minore circa ligamentum, area in valvula dextra quadrilincata, in altera nuda; cardine crassiusculo, dentibus lateralibus validis, acutis, æqualibus, æquidistantibus; flexura fere nulla.*

Hab. Philippines; Sumatra.

198. *TELLINA DIEMENENSIS*, Desh. *T. testa trigona tam lata, quam alta, solida, compressiuscula, valde inæquilaterali, squalide rufula, sub lente exillime transversim striata, incrementi ad margines interrupta; umbonibus acutis, subterminalibus; latere antico longiore, late obtuso, brevi, semi-elliptico; latere postico truncato, recto, valde declivi, extremitate inferiore subacuto; flexura parum perspicua; dentibus cardinalibus apice bifidis, laterali antico approximato; sinu pallii magno, profundo, lato, superne dilatato, gibboso.*

Hab. Van Diemen's Land.

199. *TELLINA CALLOSA*, Desh. *T. testa late ovata, subtrigona, crassa, solida, tumidula, inæquilaterali, omnino candida, tenuissime transversim striata, striis sublamellosis, striis longitudinalibus obsoletis decussatis; latere antico paulo longiore, late semi-elliptico; latere postico triangulari, superne recto, declivi, inferne angulato, flexura angusta, satis profunda, notato; margine inferiore paulo arcuato; valvis intus circa impressiones callosis, sub lente puncticulatis; cardine crasso, bidentato, dentibus lateralibus nullis; sinu pallii magno, ovato-triangulari, superne gibboso.*

Hab. Ceylon (Layard). Coll. Cuming.

200. *TELLINA MÆSTA*, Desh. *T. testa regulariter ovata, transversa, crassiuscula, tumidula, tenui, valde inæquilaterali, sub epidermide tenui, pallide viridi-flavicante alba, subcretacea, transversim obsolete striata, striis obtusis, latis, subplanis, irregularibus; latere antico longiore, obtuso, margine inferiore superioreque convexiusculis, parallelis; latere postico obtuso, paulo angustiore, flexura parum profunda; ligamento brevi, partim infosso; cardine angustissimo, bidentato, dentibus minimis, laterali antico nullo, postico obsoleto; sinu pallii brevi, late ovato.*

Hab. Northern Ocean. Coll. Cuming.

201. *TELLINA RECURVA*, Desh. *T. testa ovato-trigona, depressa, solidula, inæquilaterali, valde per longitudinem arcuata, squalide alba, irregulariter transversim striata; latere antico brevior, late obtuso, semicirculari; latere postico trigono, acuminato, superne recto, declivi, inferne angulo acuto terminato; dentibus lateralibus parum perspicuis, antico in valva sinistra dilatato, sinu pallii angusto, profundissimo, apice acuminato.*

Hab. Australia.

202. *TELLINA TRISTIS*, Desh. *T. testa elata, trigona, compressa, inæquilaterali, sub epidermide tenui, decidua, pallide flava squalide alba, calcarea, ad umbones erosa, intus candida; latere antico brevi, late obtuso, subsenicirculari, superne tumidulo; latere postico triangulari, superne recto, longe declivi, extremitate acuminato; flexura angusta, vix conspicua; sinu pallii magno, in medio dilatato, spathuliformi, profundo, apice acuto, sub impres-*

sione musculari postica maxime strangulato; ligumento elongato, crassiusculo, partim infosso.

Hab. Van Diemen's Land.

203. *TELLINA ABBREVIATA*, Desh. *T. testa late ovato-trigona, compressa, solidula, valde inæquilaterali, albo-pellucida, transversim tenue et irregulariter striata, striis obtusis confertis; latere antico lato, regulariter semi-elliptico; latere postico brevi, superne recto, rapide declivi, extremitate angulato, subrostrato; plicatura posticali angusta, satis profunda, duplicata, in valva dextra transversim oblique lamellosa; cardine angusto, inæqualiter bidentato, dentibus lateralibus validis, elongatis, antico approximato; area elongata, angusta, excavata, lævigata, angulo acuto circumdata.*

Hab. Ceylon. Coll. Cuming.

204. *TELLINA BREVIROSTRIS*, Desh. *T. testa late ovata, subtrigona, minima, tenui, depressa, inæquilaterali, candida, transversim tenue lamellosa, lamellis regularibus, brevibus, erectis, æquidistantibus; latere antico paulo longiore, late obtuso, semi-elliptico; latere postico triangulari, superne recto et valde declivi, inferne rostro brevi terminato; flexura minima, uniangulata, angusta, lamellis transversis rarioribus; area elongato-lanceolata, angusta, excavata, carina acuta, tenue et eleganter crenulata circumdata; lunula minima, angusta, lanceolata; dentibus lateralibus, subæqualibus, subæquidistantibus; sinu pallii prælongo, superne gibboso, dein declivi.*

Hab. Central America and California. Coll. Cuming.

205. *TELLINA AUSTRALIS*, Desh. *T. testa ovato-trigona, tenui, pellucida, compressa, subæquilaterali, pallide straminea, transversim tenuissime et regulariter striata, in valva sinistra striis postice evanidis, in dextra continuis; umbonibus acutis, prominentibus; margine superiore utroque latere æqualiter declivi; latere antico lato, obtuso, postice attenuato, oblique truncato, triangulato; flexura parva, parum perspicua; cardine angusto, dentibus lateralibus inæqualibus, antico majore, approximato; sinu pallii maximo, superne undulato, apice acuto.*

Hab. Australia.

206. *TELLINA STRANGEI*, Desh. *T. testu ovato-subtrigona, convexiuscula, tenui, pellucida, inæquilaterali, pallide lutea, transversim tenuissime lamellosa, striisque longitudinalibus, regularibus decussata; lamellis regularibus, æquidistantibus, brevibus; latere antico longiore, superne parum declivi, obtuso, postico paulo attenuato, obtuso, vix flexo, margine inferiore regulariter convexo; umbonibus minimis, vix prominentibus, lunula minima, parum excavata, lanceolata, lævigata; dentibus lateralibus magnis, subæqualibus, æquidistantibus.*

Hab. New Zealand. Coll. Cuming.

207. *TELLINA TESSELLATA*, Desh. *T. testa ovato-transversa, tenui, pellucida, tumidula, inæquilaterali, omnino squalide fulva,*

intus concolore, nitente, striis longitudinalibus transversalibusque tenue et eleganter decussata, striis omnibus regularibus, æqualiter impressis; latere antico elongato, semi-elliptico, superne inferneque convexiusculo; latere postico superne recto, declivi, extremitate truncato; flexura fere nulla; cardine angusto, dentibus lateralibus magnis, elongatis, triangularibus, prominentibus, æqualibus, subæquidistantibus; sinu pallii maximo, ovato, in medio superne gibbosulo.

Hab. Moreton Bay. Coll. Cuming.

208. *TELLINA ATTENUATA*, Desh. *T. testa ovato-trigona, depressa, solidula, subæquilaterali, candida, transversim inæqualiter substriata; latere antico longiore, paulo obliquo, superne declivi, convexiusculo, margine inferiore superiori fere parallelo; latere postico angulo obliquo decurrente separato, superne recto, declivi, extremitate attenuato, subrostrato; flexura posticali fere nulla; cardine angusto, dentibus lateralibus nullis; sinu pallii magno, profundo, impressione musculari antica juncto, superne dilatato, angulato.*

Hab. Port Essington. Coll. Cuming.

209. *TELLINA SILICULA*, Desh. *T. testa elongato-transversa, angusta, crassiuscula, tumidula, valde inæquilaterali, alba, vel pallide sulphurea, in latere postico radio unico, pallide roseo ornata, nitida, oblique tenuissime striata, striis argute undulatis, ad latus posticum subito terminatis; latere antico elongato, obtuso, marginibus rectis, parallelis; latere postico oblique truncato, inferne angulo obtusiusculo terminato, transversim tenue sublamelloso; flexura fere nulla; cardine crassiusculo, bidentato, altero unidentato, dentibus lateralibus nullis.*

Hab. Columbia. Coll. Cuming.

210. *TELLINA DELICATULA*, Desh. *T. testa elongato-ovata, tenuissima, compressa, hyalina, valde inæquilaterali, pallide et gratissime rosea, oblique tenuissime striata, striis æqualibus, satis distantibus, regularibus, in latere postico deficientibus; latere antico elongato, longe semi-elliptico, obtuso, superne inferneque convexiusculo; latere postico obtuso, subangulato, tenue transversim plicato; cardine angustissimo unidentato, dente laterali antico minimo, elongato, posticali nullo; sinu pallii magno, oblongo, profundo, superne undulato.*

Hab. Mazatlan. Coll. Cuming.

211. *TELLINA STRAMINEA*, Desh. *T. testa ovato-trigona, tenui, pellucida, convexiuscula, subæquilaterali, omnino pallide straminea, transversim tenue et regulariter striata; latere antico obtuso, superne declivi, paulo brevior, postico valde attenuato, triangulari, acuto, superne recto, declivi; cardine angustissimo, dente laterali antico minimo, perspicuo, posticali nullo; sinu pallii maximo, late trigono, superne angulato, gibboso.*

Hab. Bay of California. Coll. Cuming.

212. *TELLINA LEDA*, Desh. *T. testa minima, ovato-transversa, tenui, depressa, æquilaterali, alba, transversim regulariter striata, striis impressis; lateribus æqualiter obtusis, superne declivibus, margine inferiore paulo convexo; latere postico angulo obtuso distincto, striis transversis obsoletis, longitudinalibus decussatis; cardine angusto, dentibus cardinalibus minimis, lateralibus æqualibus, æquidistantibus; flexura postica fere nulla; lunula lanceolata, minima, excavata.*

Hab. Malacca. Coll. Cuming.

213. *TELLINA RUBELLA*, Desh. *T. testa elongato-angusta, tenui, fragili, convexiuscula, valde inæquilaterali, omnino rubro-purpurascens, antice posticeque rubro saturatiore uniradiata, transversim tenue et regulariter striata, striis ad latus posticum evanescentibus; latere antico elongato, obtuso, superne recto, non declivi, margine inferiore recto, superiori parallelo; latere postico attenuato, declivi, inferne acuminato, striis undulatis transversis præsertim in valvula dextra ornato; cardine angustissimo, dentibus minimis, lateralibus nullis; sinu pallii maximo, obtuso, in medio dilatato.*

Hab. Philippines. Coll. Cuming.

214. *TELLINA RUBRA*, Desh. *T. testa orbiculato-trigona, depressa, tenui, pellucida, subæquilaterali, omnino rubro-purpurea, transversim argutissime striata, striis in valva dextra profundioribus, in sinistra obsoletis, fere nullis, in latere postico evanescentibus; latere antico breviter semi-ovali, late obtuso, postico paulo brevior, triangulari, superne recto, declivi, inferne attenuato, flexura parum profunda, angusta; cardine unidentato, dentibus lateralibus parvis, postico longiore, remoto; sinu pallii maximo, triangulari, angulo superiore acuto, sub cardine prodiente.*

Hab. Ceylon. Coll. Cuming.

215. *TELLINA RESECTA*, Desh. *T. testa trigona, depressiuscula, crassa, valde inæquilaterali, sub angulo fere recto postice quasi resecta, candida, transversim tenuissime striato-lamellosa, striis tenuibus longitudinalibus decussata, striis transversis, erectis, pluribus ad latus posticum inter se confluentibus, antice sursum reflexis; latere antico prælongo, semi-ovali; latere postico abrupte truncato, inferne angulato, flexura parum perspicua, in valva dextra biangulata, lamellosa; area postica plana, lævigata, angulo acuto, tenue serrato circumscripta; ligamento elongato, crasso, partim infosso, cardine inæqualiter bidentato, dentibus majoribus pediculatis, apice profunde bifidis; sinu pallii maximo, elliptico.*

Hab. Australia.

216. *TELLINA DIAPHANA*, Desh. *T. testa ovato-trigona, solidula, convexiuscula, æquilaterali, candido-diaphana, zonulis magis perlucentibus interrupta, transversim striato-lamellosa, in latere antico obtusioribus, striis radiantibus, tenuissimis decussata;*

latere antico semi-ovato, postico triangulari, attenuato, compresso, brevirostrato, longe superne recto et declivi, margine inferiore convexo; cardine lato, inæqualiter bidentato, dentibus lateralibus triangularibus, inæqualibus, antico majore, postico magis remoto; sinu pallii maximo, impressione musculari antica juncto, superne gibboso, dein paulo excavato.

Hab. Japan. Coll. Cuming.

217. *TELLINA DENTICULATA*, Desh. *T. testa ovato-subtrigona, transversa, crassa, solida, compressa, subæquilaterali, omnino candida, transversim regulariter et tenuissime striata, striis acutiusculis, longitudinalibus, obsoletis decussatis; latere antico lato, paulo brevior, semi-elliptico, postico attenuato, superne recto et declivi, extremitate brevi-truncato; flexura minima, angusta, in valvula dextra biangulata; area angusta, plana, angulo acuto et regulariter denticulato circumscripta; cardine crasso, latiusculo, dentibus lateralibus magnis, elongatis, antico paulo majore, approximato.*

Hab. — ? Coll. Cuming.

218. *TELLINA SQUAMIFERA*, Desh. *T. testa ovato-transversa, compressa, solidula, inæquivalvi, æquilaterali, candida, transversim tenue et regulariter lamellosa, lamellis numerosis, latis, in latere postico erectis, in antico retroversis, lateribus æqualiter obtusis et superne declivibus; margine inferiore regulariter arcuato; in flexura posticali parum profunda lamellis distantioribus et minus regularibus; area angusta, plana, lævigata, angulo squamifero marginata, squamis magnis, erectis, obliquis, regularibus; dentibus lateralibus magnis, subæqualibus, postico valde remoto; sinu pallii breviculo, obtuso, medio dilatato.*

Hab. Chinese Seas. Coll. Cuming.

219. *TELLINA SEMIASPERA*, Desh. *T. testa ovato-transversa, tenui, pellucida, compressa, æquilaterali, candidissima, in medio transversim regulariter tenue striata, ad latus posticum striis erectiusculis, lamellaribus, irregulariter interruptis, in latere postico squamulis longis, erectis, spinæformibus, quincuncialibus exasperata, in latere antico squamulis brevioribus, radiatim ordinatis; latere antico obtuso, semi-elliptico, postico oblique truncato, subangulato; flexura satis profunda, in valva dextra subcarinata; lunula angusta, lanceolata, impressa, lævigata, angulo marginata; dentibus lateralibus magnis, æqualibus, æquidistantibus.*

Hab. — ? Coll. Cuming.

220. *TELLINA SOLENELLA*, Desh. *T. testa elongato-transversa, subsoleniformi, depressa, tenuissima, membranacea, hyalina, inæquilaterali, candida, lævigata, nitente; latere antico paulo longiore, obtuso, margine superiore et inferiore convexiusculis parallelis; latere postico obtuso, paulo angustiore, non*

declivi, hiantes; flexura vix perspicua; cardine angusto, bidentato, dente laterali antico minimo, cardine approximato.
Hab. Philippines, Bohol. Coll. Cuming.

221. *TELLINA EGREGIA*, Desh. *T. testa ovato-transversa, tenui, fragili, tumidula, inaequilaterali, rosea, roseo-purpurascens transversim multifasciata, albo eleganter radiata, nitida, inaequaliter transversim substriata; latere antico semi-elliptico, superne inferneque convexiusculo; latere postico triangulari, depresso, declivi, subrostrato, apice truncato; flexura late biplicata, subangulata, laevigata; cardine angusto, inaequaliter bidentato, dentibus majoribus apice dilatatis, furcatis, lateralibus minimis, angustis, aequalibus, subaequidistantibus; sinu pallii elongato, supra gibboso, extremitate attenuato.*

Hab. — ? Coll. Cuming.

222. *TELLINA AMBOYNENSIS*, Desh. *T. testa transversa, ovato-oblonga, tenui, fragili, turgidula, subaequilaterali, albo-flavida, subcornea, zonulis angustis interrupta, laevigata, nitente, obsolete transversim striata; latere antico paulo longiore, parum oblique obtuso, superne inferneque convexiusculo, marginibus parallelis; latere postico paulo attenuato, superne declivi, convexiusculo, ad extremitatem truncato; flexura parum profunda; ligamento immerso, cardine angusto, dente laterali postico vix perspicuo, antico nullo; sinu pallii profundo, lato, ovato, subspathuliformi.*

Hab. Amboyna. Coll. Cuming.

223. *TELLINA GLABRELLA*, Desh. *T. testa ovato-trigona, transversa, compressa, tenui, subaequilaterali, sub epidermide tenui, pallide flavida, albo-cretacea, inaequaliter obsolete transversim striata; latere antico longe semi-elliptico, obtuso, superne inferneque convexiusculo; latere postico attenuato, trigono, superne recto et declivi; margine inferiore in medio recto, extremitatibus arcuato; umbonibus acutis; flexura angusta, parum perspicua; cardine angusto, bidentato, dentibus inaequalibus, minimis, lateralibus nullis; sinu pallii profundo, superne gibboso, deinde declivi.*

Hab. New Zealand. Coll. Cuming.

224. *TELLINA RADIANIS*, Desh. *T. testa orbiculato-trigona, solida, depressiuscula, inaequilaterali, pallide flava, ad umbones roseo-purpurascens, radiis numerosis roseis ornata, in valvula sinistra minus numerosis, transversim tenue et regulariter striata, striis simplicibus, obtusis; latere antico magno, late semi-ovali, postico brevi, trigono, superne recto, rapide declivi, inferne subangulato, subrostrato; flexura brevi, parum profunda; lunula areaeque albis; valvis intus pallide purpureis; cardine crasso, dentibus lateralibus crassis, brevibus, aequalibus,*

cardine approximatis ; sinu pallii profundissimo, impressionem muscularem anticam attingente, superne gibboso.

Hab. — ? Coll. Cuming.

225. *TELLINA PETALINA*, Desh. *T. testa ovato-transversa, sub-trigona, tenui, compressiuscula, inæquilaterali, pallide albo-lutescente, roseo-purpurascente pulchre guttato-radiata, radiis numerosis angustis, interruptis, umbonibus albidis, intus coloribus repetitis, transversim striata, striis tenuibus, regularibus, ad umbones nullis, ad latus posticum subundulatis ; latere antico semi-elliptico, superne umbones versus concaviusculo, inferne convexo ; latere postico brevior, triangulari, superne recto et oblique declivi, ad extremitatem acuminato ; flexura parva, angusta, parum profunda, lævigata ; dentibus lateralibus magnis, triangularibus, acutis, æquidistantibus.*

Hab. — ? Coll. Cuming.

226. *TELLINA RUFA*, Desh. *T. testa ovato-transversa, solidula, convexiuscula, inæquilaterali, albida, rufo late radiata, radiis inæqualibus, ad umbones sæpius interruptis, transversim regulariter striata, striis antice planulatis, in medio et ad latus posticum erectis, striis longitudinalibus decussatis in valva sinistra, striis transversis in latere postico subito evanidis ; latere antico elongato, semi-elliptico, marginibus parallelis ; latere postico triangulari, attenuato, superne declivi, apice truncato ; flexura lata, profunda, biplicata, profunde transversim striato-plicata ; valvis intus pallide luteis ; dentibus lateralibus magnis, acutis, æqualibus, æquidistantibus ; sinu pallii magno, obtuso, ovato.*

Hab. — ? Coll. Cuming.

227. *TELLINA INCERTA*, Desh. *T. testa late ovata, transversa, solidula, convexiuscula, inæquilaterali, in umbones purpurata, flava vel pallide purpurascente, purpureo-radiata, radiis numerosis, maculis saturationibus transversim maculatis, strigis irregularibus fissuras simulantibus subreticulata, transversim striata, striis antice planis et obtusis, in medio erectis, angustioribus, interstitiis striis longitudinalibus notatis ; latere antico longiore, semiovato, obtuso, superne subrecto, inferne convexiusculo ; latere postico triangulari, attenuato, inflexo, obtuse subtruncato ; flexura profunda, satis lata, biplicata, striato-lamellosa, superne alba ; valvis intus vel purpureis vel sulphureis ; cardine crasso, dentibus lateralibus acutis, triangularibus, magnis, æquidistantibus.*

Tellina crucigera, var., Hanley.

Hab. Philippines. Coll. Cuming.

228. *TELLINA FLAMMULA*, Desh. *T. testa elongato-transversa, subovata, solida, convexiuscula, inæquilaterali, luteo-sulphurea, in umbones purpureo-violascente maculata et biflammulata, flammulis rapide evanescentibus, transversim tenue striata, striis*

depressis, ad latus posticum erectis, et in squamulas inæquales divisas, in valva dextra striis postice subito evanidis; latere antico semi-elliptico, obtuso, paulo longiore; latere postico attenuato, subrostrato, superne declivi, extremitate truncato, flexura profunda, fere lavigata; valvis intus sulphureis; sinu pallii profundissimo, longe ovato.

Hab. —? Coll. Cuming.

229. *TELLINA SIEBOLDII*, Desh. *T. testa elongato-transversa, angusta, lanceolata, tenui, fragili, compressa, inæquilaterali, omnino rubro-purpurascens, in valva sinistra transversim tenue et satis regulariter striata, in valva dextra striis obsoletis; latere antico elongato, obtuso, superne recto, inferne paulo arcuato; latere postico brevior, valde attenuato, compresso, rostrato; flexura angusta; area posticali angusta, eleganter plicata, angulo angusto, tenue et regulariter crenato circumdata; dentibus lateralibus angustis, elongatis, æqualibus, æquidistantibus; sinu pallii breviculo, superne gibboso, dein declivi, apice attenuato.*

Hab. Japan. Coll. Cuming.

230. *TELLINA VENUSTA*, Desh. *T. testa elongato-transversa, tenui, fragili, compressiuscula, inæquilaterali, nitida, sulphureo-incarnata, ad umbones rosea, et breviter subradiata, radio unico angusto, roseo in plicatura posticali, transversim obsoletissime striata, in valva dextra, striis ad latus posticum prominentioribus, acutis; latere antico elongato, obtuso, longe semi-elliptico, marginibus parallelis; latere postico triangulari, compresso, attenuato, rostrato, plicatura satis profunda, contorto, apice oblique truncato; sinu pallii breviculo, attenuato, superne in medio gibbosulo, deinde declivi, et paulo excavato; dentibus lateralibus angustissimis, elongatis, æqualibus.*

Hab. Sandwich Islands. Coll. Cuming.

231. *TELLINA DIALEUCA*, Desh. *T. testa elongato-transversa, tenui, fragili, turgidula, inæquilaterali, nitida, hyalina, pallide flavo-aurantia, ad umbones subvitrea, obsoletissime transversim et longitudinaliter striata, striis transversis in latere postico prominulis, subrotundato-crenatis; latere antico prælongo, longe semiovali, superne recto, inferne convexiusculo; latere postico valde attenuato, rostrato, apice breviter truncato, superne recto et declivi; flexura profunda, in valva dextra acute biangulata; cardine angusto, inæqualiter bidentato, dente laterali antico minimo, elongato, valde remoto, postico minore.*

Hab. Pedang. Coll. Cuming.

232. *TELLINA SULCATINA*, Desh. *T. testa elongato-transversa, angusta, compressa, tenui, inæquilaterali, inæquivalvi, squalide flavo-rubente, transversim tenue et regulariter striata, striis planis, latis, ad latus posticum rectiusculis, acutiusculis; latere antico longe semi-elliptico, angusto, obtuso, superne inferneque recto, marginibus parallelis, latere postico subtrigono, elongato, subros-*

trato, apice oblique truncato, superne recto et declivi, flexura obtusa distincto, supra angulum transversim lamellosa; cardine angusto; dente laterali antico elongato, postico nullo; sinu pallii profundo, angusto, obtuso, marginibus parallelis.

Hab. Chinese Seas. Coll. Cuming.

233. *TELLINA VINOSA*, Desh. *T. testa elongato-transversa, solidula, subventricosa, inæquilaterali, squalide purpurea, vinosa, zonulis aliquibus saturatioribus interrupta, intus grate albo-purpurascenti, ad extremitatem posticam vivide purpureo-sanguinea, transversim striata; striis in latere antico simplicibus, planis, ad latus posticum angustioribus, erectiusculis, et in squamulas erectas, inæquales divisas, in valva sinistra striis postice subito interruptis; latere antico elliptico, paulo dilatato, obtuso; latere postico triangulari, attenuato, rostrato, superne recto et declivi; flexura profunde biplicata, levigata; cardine crassiusculo, dentibus lateralibus validis, elongatis, æqualibus, æquidistantibus.*

Hab. — ? Coll. Cuming.

234. *TELLINA AMENA*, Desh. *T. testa elongato-transversa, angusta, solidula, convexiuscula, inæquilaterali, pallide luteo-sulphurea, radiis raris, angustis, purpureis, interruptis ornata, transversim regulariter striata; striis in latere antico planis, in latere postico erectis, sublamellosis, aliquantisper paulo interruptis in valva dextra, continuis et crassioribus in sinistra; latere antico longe semi-elliptico, obtuso, superne inferneque vix convexiusculo; latere postico breviori, triangulari, angusto, attenuato, rostrato, acuto, flexura profunda notato, in flexura lamellosa; dentibus lateralibus validis, æqualibus, æquidistantibus, in valva dextra dilatatis.*

Hab. Chinese Seas. Coll. Cuming.

235. *TELLINA GRATIOSA*, Desh. *T. testa elongato-transversa, solidula, convexiuscula, inæquilaterali, pallide sulphurea, purpureo eleganter radiata, fasciis tricoloribus, transversis, satis regulariter interruptis et maculis quadratis formatis; umbonibus purpureis; transversim et regulariter striata, striis latis, planis in latere antico, in postico angustis, lamellosis, in squamulas oblongas interruptis; latere antico longiori, obtuso, superne fere recto, inferne in medio convexo, latere postico attenuato, inflexo, rostrato, oblique truncato, superne recto et declivi, flexura profunda, lamellosa; cardine inæqualiter bidentato, dentibus lateralibus magnis elongatis, postico paulo breviori.*

Hab. Philippines. Coll. Cuming.

236. *TELLINA GRATA*, Desh. *T. testa elongato-transversa, solidula, compressiuscula, inæquilaterali, pallide purpurascenti, purpureo interruptim radiata, radiis ad umbones evanidis, in latere antico tenuissime et regulariter striata, striis in medio multo minus numerosis, majoribus, postice lamellosis et in squamulas interruptis; latere antico semi-elliptico, postico breviori, attenuato, rostrato, flexura profunda notato; valvis intus albis, ad margines purpureis,*

impressionibus muscularibus sanguineis; sinu pallii profundissimo, longissime elliptico.

Hab. Amboyna. Coll. Cuming.

237. *TELLINA ORNATA*, Desh. *T. testa elongato-transversa, angusta, solidula, convexiuscula, inæquilaterali, albo pallide purpurascenti, ad umbones purpurea, radiis purpureis, angustis ornata, transversim regulariter et tenue striata; striis obtusis, ad latus posticum angustioribus, lamellosis, erectis; latere antico longiori, angusto, obtuso, marginibus parallelis; latere postico attenuato, subrostrato, superne recto et declivi, extremitate perpendiculariter truncato; flexura profunda, in valva dextra biangulata, vix striato-lamellosa; sinu pallii longissimo, angusto, marginibus convexiusculis, fere parallelis.*

Hab. —? Coll. Cuming.

238. *TELLINA DECOLORATA*, Desh. *T. testa elongato-transversa, solidula, depressa, æquilaterali, pallide luteo-grisea, transversim sulcata, sulcis ad latus posticum distantioribus, sublamellosis, in squamulas breves interruptis, interstitiis striis obsoletis longitudinalibus radiatis; latere antico semi-elliptico, superne recto, paulo declivi, inferne convexiusculo; latere postico rostrato, arcuato, recte truncato, attenuato, superne recto et declivi; flexura profunda, biangulata, late lamellosa; area angusta, plana, angulo crenato circumdata; sinu pallii magno, profundo, ovato, apice elevato, acuminato.*

Hab. Moluccas. Coll. Cuming.

239. *TELLINA DISSIMILIS*, Desh. *T. testa elongato-transversa, angusta, crassiuscula, compressiuscula, subæquilaterali, luteo-flavescenti, ad umbones albicanti, purpureo multi-radiata, transversim striato-sulcata, sulcis in valva dextra ad latus posticum erectiusculis, lamellosis et squamulis erectis quincuncialibus divis; in valva sinistra sulcis continuis; latere antico paulo longiori, longe semi-elliptico, superne recto, inferne paulo convexo; latere postico triangulari, late subrostrato, attenuato, superne recto, declivi, extremitate oblique truncato; flexura profunda, biangulata, undatim lamellosa; valvis intus albis, roseo-radiatis; sinu pallii profundo, anguste elliptico.*

Hab. —? Coll. Cuming.

240. *TELLINA SPLENDIDA*, Desh. *T. testa elongato-transversa, solidula, compressiuscula, subæquilaterali, albo pallide lutea, eleganter purpureo vivide multi-radiata, radiis interruptis, fasciis angustis albis et purpureo saturatiore, umbonibus pallidis, intus lutea, roseo pallide radiata, transversim regulariter et profunde striata; striis antice obtusis, ad latus posticum acutioribus et in valva sinistra tenue undato-crispis; latere antico longe semi-elliptico, superne recto; latere postico attenuato, rostrato, superne recto et declivi, extremitate truncato; cardine dentibus lateralibus elongatis, acutis, æquidistantibus.*

Hab. —? Coll. Cuming.

211. **TELLINA DUBIA**, Desh. *T. testa ovato-transversa, tumidula, solidiuscula, alba, zonulis transversis, pallidis interrupta, inaequaliter, transversim inaequaliter subtilissime striata; lute antice elongato, semi-elliptico, late obtuso, margine superiore inferiori parallelo; latere postico brevi, flexura lata, non profunda, contorto, superne recto et declivi, extremitate late truncato; ligamento brevi, semicylindrico, intus in margine triangulari affixo; dentibus cardinalibus duobus parvis, lateralibus nullis; sinu pallii irregulariter trapezoidali, in medio valde dilatato.*

Hab. — ?

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